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VOL. XXXII.

June, 1875.

NUMBER 6.

THE

# Chicago Medical Journal.

J. ADAMS ALLEN, M.D., LL.D., WALTER HAY, M.D.,  
EDITORS.

TWELVE TIMES A YEAR.



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THE  
**C**hicago **M**edical **J**ournal.

A MONTHLY RECORD OF

*Medicine, Surgery and the Collateral Sciences.*

EDITED BY J. ADAMS ALLEN, M.D., LL.D.: AND WALTER HAY, M.D.

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VOL. XXXII.—JUNE, 1875.—No. 6.

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**Original Communications.**

ARTICLE I.

EXAMINATION OF BRAIN.

BY JOS. G. RICHARDSON, M.D.,

Microscopist to the Pennsylvania Hospital, Philadelphia, Pa.

The specimen from Dr. Walter Hay's case of Traumatic Tetanus, reached me by Express from Chicago, April 23, 1875, and for an alcohol preparation, arrived in admirable condition.

The medulla oblongata had been cut through obliquely (probably in removing the brain at the autopsy), about three-eighths of an inch below the inferior border of the pons varolii, so that, unfortunately, no portion of the spinal cord was preserved.

Thin transverse sections, cut from the stump of the medulla, and therefore on a plane with part of the roots of the pneumogastrics, were some of them prepared by

Lockhart Clarke's method ;\* others by that of Gerlach, with double chloride of gold ;† and still others by Gerlach's second method, with carmine and ammonia. When examined microscopically, under various powers, ranging from 50 to 2,000 diameters, these specimens did not furnish any evidence of pathological alterations of structure, and especially none of "granular" or "fluid disintegration," such as is described by Clarke in his original paper.‡

Sections cut from about the middle of the pons, and prepared in like manner by these several different processes, afforded similar negative results, as did likewise vertical slices of tissue from the right lobe of the cerebrum, and of the cerebellum, examined in glycerin, and also in oil of cloves.

In the typical example, detailed at length by Mr. L. Clarke, in the article above referred to, he expressly states (p. 258) : "The medulla oblongata and the upper end of the cord, which give origin to the first cervical nerves, were apparently free from disease. At the second cervical nerves, however, streaks and irregular areas of disintegration were observed in different parts of the gray substance, and particularly around the central canal, on the right side of which was a space of considerable size, containing a finely granular fluid, with the debris of blood-vessels and nerves." In Dr. Hay's case, therefore, the results, as far as obtained or obtainable, tend to corroborate Lockhart Clarke's observation, that no structural changes are visible, on microscopical examination, in the brains of patients dying from tetanus.

Neither Dr. W. H. Dickinson, in his excellent report of a case of Tetanus, before the Royal Medical and Chirurgical Society (Med. Times and Gazette, Oct., 1868, p. 460), nor MM. Arloing and Leon Tripier, in their Experimental and

\* Frey Microscope and Microscopical Technology, Transl. New York, 1872, p. 354.

† Stricker's Histology, New Syd. Soc. Transl. London, 1872, vol. ii, p. 344.

‡ Medico-Chirurgical Trans. London, 1865, vol. xlviii, p. 255.

Clinical Researches on Tetanus (*Archives de Physiologie normale et Pathologique*, Tome III, 1870, p. 235), nor Ranke, in his *Physiologico-Chemical Study of Tetanus* (for an abstract of which see Prager *Vierteljahrsschrift fur die Praktische Heilkunde*, 1866, 89 er Band, Analekten, S. 106), refer to cases in which lesion of any part of the brain was discovered on post mortem examination.

In conclusion, I would express my regret, first, that unavoidable circumstances prevented the gentlemen making this autopsy from securing at least the upper portion of the medulla spinalis; and, second, that subsequent investigations were necessarily performed upon the specimens after they had passed beyond that fresh condition which alone admits of the best preparation and the most satisfactory research.

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#### ARTICLE II.

#### HEREDITARY TRANSMISSION AND VARIATION BY DESCENT.

Dr. Brown-Sequard, a gentleman who is a foster-parent of physiological science, but a terrible bane to guinea pigs, says, from a late series of experiments upon these little animals, that injuries to the parents result in analogous lesions in the children even to the extent that a young pig is born without toes, of parents from whom the toes have been removed artificially. Some of his conclusions concerning the hereditary transmission of morbid states to many animals, caused in either one or both of their parents by some injury to the nervous system, are as follows:

1. A change in the shape of the ear, of those animals in which such a change was caused by a division of the cervical sympathetic nerve in the parent.
2. Partial closure of the eyelids, in animals born of parents in which that state of the eyelids had been caused,

either by section of the cervical sympathetic nerve, or by removal of the superior cervical ganglion.

3. Dry gangrene of the ears, in animals born of parents in which these ear alterations had been caused by injury to the restiform body.

4. Section of the sciatic nerve has been practiced in animals, with the result of rendering portions of the foot anaesthetic, which portion was eaten off by the animal, and the result was the production of the same deformity in its offspring for three generations; thus showing that the sciatic nerve acquired the inherited power, in the congenitally toeless animal, of transmitting this peculiar deformity.

The law of hereditary variation in species, of plants, animals and man, is the cause of their respective varieties. Every organism bears a general resemblance to its parents, but it is equally true that no organization is exactly like its parent—it differs in numerous traits of more or less importance. No two plants are alike, and no two animals exist without difference. It is almost incomprehensible what variation there is in human beings. It is strange, indeed, that there can be such differences in the human face, and yet so many be considered good looking.

Charles Darwin, who has immortalized himself—and the monkey—has probably made more investigations on the subject of variation of species than any other man. His experiments were made upon pigeons. Beginning with a pair of the original stock—the rock pigeon—he succeeded, by his favorite and celebrated methods of “Sexual selection” and “Survival of the fittest,” in producing about one hundred and fifty varieties of pigeons.

Another instance in point was the Ancon sheep, a variety at one time well known in this country. The stock originated in 1791, in a flock of sheep consisting of one male and thirteen females, owned by Seth Wright, a farmer in Mass. Of this flock a lamb was born of very peculiar formation. It had a very long body, very short

legs, and the legs were bowed. The lamb was a male, and Wright, anticipating Darwin, bred from this male, and in time produced a flock of an entirely new variety of sheep. The variety was, however, lost afterward by mixture with other varieties. Darwin concludes, therefore, that all the varieties of plants, animals and man originate in the great law of hereditary transmission and variation by descent. Regarding the human species, therefore, I am not one of those who can believe otherwise than that all varieties sprang originally from a single pair, nor can I see any good ground whatever, or any tenable sort of evidence, for believing that there is but one species of man. Nevertheless, as there are great numbers and varieties of plants and animals, so are there many remarkable varieties of men. I speak not particularly of the distinctions in races, but there are some most astonishing varieties in men of the same race, in regard to structural development, especially to the structural development of that dominant organ, brains. In the human species, also, the transmission of abnormal structures occurs. A very notable instance was that of a Maltese, named Gratio, who was born with six fingers on each hand. He married a woman with the usual number of fingers, and they had four children, two of whom had the same deformity. This deformity was lost after the third generation. It is plain to be seen that had members of this family intermarried, there would have been a six-fingered variety of mankind, but their "sexual selection" was under their own control, and the peculiarity was swallowed up in pure blood, or, more strictly, pure nervous influence. Cleft palate, club foot, and kindred morbid variations and vagaries of human generation, depend upon the same cause. When Darwin can take a pair of monkeys and pen them up, and by controlling their sexual selection, nursing their varieties, killing the weakest, so as to allow the survival of the fittest, and bring out a new Adam and Eve as the result of his breeding, faith will increase in his doctrines.

Hereditary transmission of disease in human subjects—our patients—is subject to the same rules as variation of the species. Brown-Sequard, in the course of his investigations into the causes of epilepsy, discovered a method by which epilepsy could be originated. Guinea pigs were of course the victims upon which he operated, and eventually he discovered the remarkable fact, that the young of those animals upon which he had produced epilepsy, were epileptic. The artificially produced epilepsy in the parents, caused constitutional epilepsy in the young. Here then we have an instance, which, standing alone, decides the question. We have a special form of nervous disease, not caused by any natural variation of structure or of function that has arisen spontaneously in the organism, or caused directly to the nerves by mechanical injury. There is the special form of nervous aberration confirmed by repetition. The fits are more readily and easily induced, until there is established the epileptic habit, that is, the various actions constituting the fit produce in the nervous system such structural changes, that result in repeated epilepsy, and affecting the reproductive centres, cause them to produce organisms with the same epileptic tendencies. Statistics show that one-half of the epileptic cases are directly traceable to inherited tendency.

Serofula and syphilis are types of hereditary diseases. Their laws of transmission are well understood by the medical profession, and are subject, in cause, origin and transmission, to the same laws as the transmission of variation in species. They *are* simply the variations of the species of human beings, that we term disease, because they are negative variations, and the tendency is to dissolution of the organism.

There is another property of hereditary transmission which I will now bring forward, called atavism. It is taken from a word meaning ancestor, and means that peculiar ancestral traits may skip over a generation or two, and then reappear. It also refers to the tendency in

species to preserve their integrity against variation. In medicine, it covers the ground expressed by "Vis medicatrix naturæ." One is often surprised to see a black lamb, or one with black spots, in a flock of white sheep, but generally his darkness can be traced to his colored ancestral parent. Instances still more remarkable, in which the remoteness of the ancestors is very great indeed, are quoted by Darwin. He reports that in crosses between varieties of the pigeon, there will sometimes reappear the plumage of the original rock pigeon, from which these varieties descended. By atavism, varieties of species are sometimes lost—they recover the original form of the species from which the variation occurred, as in the instance of the Ancon sheep. Instances have been known in the human family, generally those inhabiting the sunny South, where a black baby has suddenly and unwelcomely made his appearance and paled his white ancestors with terror. In such cases, the peace of families is *sometimes* restored by the resurrection of the long-buried secret, that away back among the blooded ancestry, there had been a little unfortunate miscegenation. By means of atavism, or dilution with pure blood, human sins are washed away, as well as the vagaries and variations of human genesis. Diseases are only kept from engulfing the world, as the Asiatic deluge, by the mixture of pure blood as well as—the skill of the physician.

King David may have had a glimmering inspiration of this idea, when in his tottering age he took unto himself a young and blushing bride, that he might rejuvenate himself, but David was duly "gathered to his fathers."

The causes of variation in heredity. These are difficult to define, but may be enumerated as the external, internal, and spontaneous. Some cases of the external, as the operations of Sequard and Darwin, are well enough understood. Doubtless in nature the external causes are similar. The influence of climate, temperature, food, air, light, and the struggle for existence, have had the most to

do with the variation and development of all species and their diseases in plants, animals and man.

As an instance of the influence of climate and social conditions upon the human species, I will refer you to one of the ruling elements of our society and body politic, the Irishman. This race, in this country, is an illustration of what external causes of variation can do. The difference between the general appearance, and mental and moral idiosyncrasies of the "Paddy from Cork" as he treads the bogs of his native "green isle of the sea" or appears in Castle Garden, N. Y., on landing from the emigrant ship, and his grandchildren, born and educated in America, is truly marvelous. The third generation of Irish in this country, is completely Americanized, in fact they are, in a large proportion, the Americans of to-day. The Irishman when he emigrates leaves his "Donnybrook fair," and generally his "shillalah," behind him, and, in the second generation, the "rich brogue" and many other Irish traits disappear, and the third generation is born American indeed and in truth. The Irishman in America must, by force of external causes, be wholly, and only, American.

The influence of light in variation of species, is beautifully illustrated in the eyeless fish of the great Mammoth Cave of Kentucky. The ancestors of these fish were undoubtedly at some time, by some means, introduced from without into the cave, and had eyes, but, being unable to escape and being in total darkness, there was no necessity for eyes, and as generation after generation was produced, the organs of sight gradually and entirely disappeared.

In view of these facts, the question would not seem to be, what variation in species *can* external causes produce, but what can they *not* produce.

I will only hint at the internal causes, for it implies too much biological knowledge to explain fully and to understand. By saying that every organism to exist must retain a due balance between its internal organic life

forces, and those forces to which it is subject externally, it will be seen that this due balance may not always be adjusted perfectly, and in fact seldom is, and may be so far differentiated as to cause error of nutrition, disease, or some other variation, by disturbance of internal forces.

By spontaneous cause, is not meant exactly chance cause, but in reality it means that very little is known about it. Spontaneous, in science, and etiology, in medicine, means that the scientist and the physician don't like to say, I don't know—and so say, spontaneous. Perhaps a good illustration of these causes combined, may be found in the action of the mother's mind upon some peculiarities of the structural formation of her unborn child. Scientists and physicians have labored enthusiastically over what they term, or would term, if they could find it, spontaneous generation. They have hunted, as the alchemists hunted, for the elixir of life and the philosopher's stone, while the theologian has looked over their shoulders with bated breath, but with the smile of derision ready. One enthusiast watched an hermetically sealed tube containing a little grass and water, sixteen hours, through his microscope, for the bacteria which, like the old woman's soap, wouldn't come. The question may be asked, Where is the seat, or the immediate influence exerted that produces variation? Undoubtedly it is in the nervous system; whether the cause be external, internal, or spontaneous, its influence *must* be upon the nervous system, and there the impression is made that causes variation in the species, structural or pathological. Brown-Sequard's cases prove this. It is a hard blow to humoral pathology. The nervous system receives all impressions, and it is only the nervous system that can remember them and cause them to reappear, and so faithfully transmit them.

Now, then, how are variations transmitted? There is such a thing as a physiological unit. It bears the same relation to organic life that the unit or atom of matter

does to the material universe, or that the number one does to mathematical science. The unit of matter, the atom, contains all the properties of the kind of matter to which it belongs. The unit of numbers contains all the properties of mathematics. The simplest form of figures may be found upon the schoolboy's slate, and perhaps a few upon the page of the physician's daily pocket record, but the combinations of these figures solve the problems of Euclid, and measure the distances between the fixed stars. The physiological unit, or the primal element of life, which men have so long looked to see spontaneously generated, contains all the properties of organic life. Its simplest form is the bacteria, the algæ, and the cell-life that we see coloring with a green tinge the surface of ponds of water. Its highest form is the illustrious ego, or man himself.

In generation and transmission, the germ-cell, and the spermatic-cell, are simply the vehicles, or common carriers of the physiological unit. The units meet, each carrying in its nature and constitution the heredity, the variations, the disease of the parent of the new organism about to be created. It is nature's most wonderful process. The units blend, unite, perhaps some variations of opposite character in the two units are cancelled, and here is one of nature's methods in atavism, new forces by their union are generated, and the result is, a new organism begins its development, with its character to a great extent predestined, as well as its heredity, by the physiological unit. We do not suppose that Calvin thought of this when he taught his doctrine of predestination, but for a man who was hunting in the dark, he came very near the truth. The two great contending elements in social life, science and religion, can be reconciled, if both will kneel humbly and learn of the physiological unit.

Gentlemen, to paraphrase an old saying: Take care of the units and the organisms will take care of themselves. Physiologists and scientists have satisfied them-

selves that the mind of man, his intelligence, his consciousness and moral nature depend upon the structure and physiological action of his brain. We are conscious living beings, only when the brain is in action. The existence of a separate entity, the soul, or spirit, operating through the brain, is believed by the greater portion of mankind, but it is certain, from observation, that man's mental status and moral nature are hereditary, and subject to the same laws as variation in every other respect. Physiologists have demonstrated that the gray cerebral cells of the cerebrum in action, generate the phenomena of thought and consciousness. Then mind, being directly one of the results of the combined action of the nervous system, what is so likely to be transmitted as mental peculiarities? The criminal beget criminal, the insane beget insane, as well as the gouty and scrofulous beget their kind. Religion may stand in the relation of a physician to the perverted, diseased moral nature, but to trace the analogy farther, there are so many quack religions in the world, that, though many are called, few come, or are chosen—that is, are cured.

Civilized nations have always had the care of the insane, and the criminal varieties of the human species, and have suffered thereby as individual organisms have by disease. It will probably always continue to be so, for there will probably never be mixture of pure blood enough to destroy the varieties by atavism, and the good will not bribe legislatures to condemn the wicked, the diseased, the monstrous, to eternal celibacy, and if they did, some of them would undoubtedly occasionally jump the fence, so to speak, and propagate their special variety by hereditary transmission and variation by descent.

## Progress in Medical Sciences.

### ARTICLE I.

#### PROGRESS OF SURGERY.

BY JNO. E. OWENS, M.D.,

LECTURER ON SURGERY, RUSH MEDICAL COLLEGE, CHICAGO.

1. Alleged Rotation of the Ulna. By THOMAS DWIGHT, Jr., M.D. (*The Boston Medical and Surgical Journal*, March 11, 1875.)
2. Salicylic Acid. (*The Boston Medical and Surgical Journal*, March 11, 1875.)
3. Operative Means for the Relief of Patients Suffering with Advanced Prostatic Disease. By Sir HENRY THOMPSON. (*London Lancet*, March, 1875.)
4. Cotton-Wool Dressing for Wounds. (*The Boston Medical and Surgical Journal*, March 18, 1875.)

1. Dr. Dwight denies the alleged rotation of the ulna, "as held by Dr. Lecompte."\* The demonstration of the latter consists in inclosing the wrist in a metal ring large enough to allow it to turn, and in noticing that as the hand is rotated the end of the ulna undoubtedly changes its place. It is hard to believe, says Dr. Dwight, that the ulna does not move; but the following experiment, which he has tried several times, shows conclusively that the appearance is deceptive: Rotate the arm of a cadaver, and observe the same apparent movement of the bone that is seen in life; then make a small incision down to the bone on the styloid process of the ulna, and drive a large pin firmly in. On fixing the humerus and repeating the rotation, it will be seen that the pin does not move.

2. Upon the authority of Prof. Kolbe, salicylic acid has been employed, in the lying-in hospital of Leipsic, to the exclusion of carbolic acid, since July last, for dis-

\* *Archives Generales de Medecine*, August, 1874.

infection of the hands, in vaginal douching, etc., in solution in water of one part in three hundred to one part in nine hundred, or as a powder mixed with starch in proportion of one part in five. This use of salicylic acid has been attended with such successful results, that it is recommended in the strongest terms for use in obstetric practice, by the authorities of the hospital. Prof. Kolbe suggests that physicians, and especially hospital physicians, should study the action of salicylic as a medicine, whether and in what quantity of larger or lesser doses it will influence scarlet fever, diphtheria, eruptions, syphilis, etc.; and whether it may be used against *pyæmia* and the *bites of dogs*. To prove the innocuousness of salicylic acid, Kolbe took, for several consecutive days, seven and a half grains daily in water, (one part to one thousand) without the slightest observable unpleasant effect. After an interval of eight days he took for five consecutive days fifteen and a half grains daily, and then for two days twenty-three grains in alcohol each day. The digestion was perfectly normal; no trace of salicylic acid could be found in the urine or faeces. (Perchloride, the test, gives an intense violet color). At no time was there the slightest discomfort. Prof. Kolbe and eight of his students repeated the experiment. Each took on the first day one gramme ( $15\frac{1}{2}$  grs.), and on the second day one and a quarter grammes, of salicylic acid. Not one of them was able to observe the slightest derangement of any organs.

C. Neubauer (a pupil of Prof. Kolbe) has experimented with salicylic acid to determine the quantity necessary to arrest fermentation in solutions of sugar and in new wine. He found that one gramme of salicylic acid is adequate to make 0.98 gramme of pure yeast (weighed dry) in ten litres (about ten quarts) of new wine incapable of fermentation.

We anticipate gratifying results from the employment of salicylic acid in surgery.

3. Sir Henry Thompson adds another method of relief

to patients suffering from "advanced prostatic disease." By this term, the author refers to the last stage of complete or permanent obstruction existing at or about the neck of the bladder—obstruction to the outflow of urine by natural efforts. When obstruction is not only complete but permanent, disease of the prostate is mostly the cause. Having already gone over the ground, Sir Henry merely reminds his audience (at University College Hospital, London,) that very many individuals between fifty-five and sixty years of age begin to be unable to expel entirely the contents of the bladder. The act of micturition is more frequently performed, and requires some effort; the stream grows feeble, and, under the influence of external cold, or of some diuretic act distending the bladder, or other cause, it often happens that complete or nearly complete retention is established. In such cases of hypertrophy, the bladder is generally not emptied at any act; and if, immediately after an attempt to do so, a catheter be passed, a notable quantity will be left behind, and is drawn off by the instrument. Under these circumstances the patient is taught to use the catheter twice, three times, or more frequently, according to his necessity, in the twenty-four hours. With increase in age the bladder often requires relief six, seven or eight times daily. In some cases, which happily are only exceptional, a more advanced stage arrives, by gradual steps, associated with a greatly diminished capacity of the bladder, so that the use of the catheter becomes necessary from sixteen to twenty-four times, or more, in the twenty-four hours. One can easily imagine the extreme misery, loss of rest, fatigue which such a condition entails. At such a stage, the augmented volume of the prostate sometimes makes the canal difficult to traverse alike for the patient and the surgeon. Should a false passage be made at this crisis, the result is almost necessarily fatal. Such a patient then exists for little else than to pass his catheter. No sooner has he obtained a half hour's relief, than he begins to feel the warning of

another approaching call. His powers are tasked to the utmost, continuous sleep is out of the question, and health rapidly declines.

The method of relief referred to consists of a proceeding similar to that which we employ in the trachea when death is imminent for want of air, viz., the introduction of a tube beyond the seat of obstruction—one which is to be permanently retained there as the constant channel for urine, just as the tracheotomy tube has been for many a patient the only channel during years for air to the lungs. The proceeding proposed, the puncture of the bladder behind the pubes, differs from ordinary puncture, and more resembles the high operation for stone, being rather a compound of the two. The operation consists in passing a large sound, hollow throughout, with a strongly marked curve, and closed by a bulbous-ended stylet. The instrument is introduced by the urethra until the end can be felt just behind the symphysis pubis. It is then confided to an assistant to retain in its place. The operator now makes an incision not more than three-quarters of an inch in length, less if the patient is not stout,—enough to admit the index finger tightly, since a larger opening becomes embarrassing subsequently,—in the median line at the upper margin of the symphysis. The tissues are separated by the finger, and the linea alba being next slightly divided by the point of a bistoury, the finger is passed down closely behind the symphysis, and when the end of the sound is clearly felt, a little opening is made, in order to expose its point. The operator now taking the handle of the sound in his left hand, makes the end protrude in the wound, the bulbous stylet is withdrawn, and he passes a tube in its whole length into the hollow channel of the sound. The supra-pubic tube, (elastic gum) is about two and a half inches long, and fitted to a silver plate. The withdrawal of the sound leaves the tube in the bladder. The tube must be securely fastened with tapes and plaster, and worn a few days in bed until the parts are con-

solidated, after which the patient can move about with safety.

It is important that the wound be as small as possible. A large wound is more painful, and is constantly traversed by the urine.

4. G. B. S., in his "Letters from Paris," reports favorably upon the value of M. Guerin's cotton-wool dressing for wounds. He reminds us that this dressing has now been in use about five years in Paris, and may be fairly considered "to have made its proofs." Last May, Monsieur Guerin submitted to the Academie des Sciences a paper upon the influences of ferments in surgical maladies, upon which paper a committee, composed of such men as Claude Bernard, Pasteur, Sedillot and Larrey, lately presented a report. The Societe de Chirurgie, at a late meeting, decreed the Duval prize to M. Hervey, a former "interne" of Guerin for a very elaborate paper upon cotton-wool dressing in practice. The paper of the latter considered simply the theory of the dressing.

However much the difference of opinion among the best authorities as to the theory, the practical usefulness of cotton-wool as a dressing is generally accepted.

M. Guerin expressed himself to the correspondent as continuing entirely convinced of the merits of his system, and quite content to await the verdict of posterity. He insists upon the action of the cotton as a filter; the air reaches the wound, but leaves upon the way its noxious accompaniments; the pus beneath the cotton undergoes a chemical decomposition, entirely different from putrid fermentation. The pus, examined under the microscope, is found to have lost its globules, and presents the appearance of a fatty emulsion.

A quantity of fresh pus was carefully inclosed in cotton-wool, in such a manner as to avoid previous contact with the external air. At the end of forty-two days it had no putrid odor, and microscopically showed no traces of any living corpuscles; there were neither bacteria nor vibrios.

Another portion of pus, taken with less care, and preserved beneath a less thick layer of cotton, gave out at the end of three weeks the usual putrid smell, and showed great numbers of vibriones.

He has renounced the earlier practice of wetting the dressings with disinfecting solutions, as it injures the filtering properties of the cotton.

In the report presented to the Academie des Sciences by M. Gorselin, in behalf of the committee above mentioned, although the theory of M. Guerin is left as an open question, the practical value of the dressing is abundantly recognized, and recommended to the careful attention of surgeons. The general opinion is that the cotton-wool is particularly useful as a dressing in amputations of the limbs when not too high up, less desirable in compound fractures and resections, and to be rejected in amputations of the breast.

The Boston Medical and Surgical Journal, August 27, 1874, contains a communication\* from Thos. B. Curtis, M.D., of Boston, entitled "Cotton-Wool Dressing for Wounds." The practical details of the treatment, and other facts connected therewith, are thus set forth in Dr. Curtis' paper :

In December, 1870, Alphonse Guerin, Surgeon of the Paris Hospitals, now at the head of the Surgical Service at the Hotel Dieu, instituted a new dressing for wounds, consisting, mainly, in the use of cotton-wool, which is applied in very large quantities around the wounded limb, rendered firm and compact by tightly applied bandages, and left undisturbed for *several weeks*.

During the Franco-Prussian War, and during the Commune, the mortality among the wounded soldiers in Paris was very great, chiefly from pyæmia and other forms of hospital infection. Dr. Guerin was led to make experiments, with a view to discover some means of averting the terrible complications which make death

\* Read before the Massachusetts Medical Society, June 2, 1874.

the almost inevitable result of every gun-shot wound, however treated. Believing in the germ theory of putrefaction and of septicaemia, and knowing the power of cotton-wool to deprive air of the putrefactive particles which it carries, he devised the cotton-wool dressing, and at once put it in practice in hospitals where his own practice and that of his colleagues had, till then, given the most disastrous results. His efforts were crowned by immediate success; and other surgeons, surprised at seeing his cases of amputation on the way to recovery, soon followed his example, and were similarly rewarded. Tyndall had already shown, by his experiments with a beam of sunlight traversing a dark space, that a sufficient thickness of cotton wool would arrest the solid particles conveyed by air in the shape of dust; and Pasteur had established the fact that urine, boiled and put away in flasks stopped up with cotton-wool, did not undergo putrefaction.

For surgical dressings, the wool itself must be of good quality, tolerably white and clean, and free from foreign matter; if possessed of a glazed surface, this must be stripped off, and the sheets of wool, torn into long strips about a foot wide, must be rolled up so that they may be methodically applied around the part to be dressed. It is difficult to believe what an enormous quantity of wool may be used in a single dressing. Guerin has sometimes used as much as four pounds. The usual fault is to apply too small a quantity of wool. Besides the wool in sufficient quantity, a number of rolled bandages, two inches wide and eight or ten yards long, must be at hand.

The supply of bandages must be ample, as may be recognized when it is known that the bandages removed from some of Guerin's dressings have amounted in all to 150 or 200 yards.

The operation and the dressing should never be performed in a septic atmosphere; never in the wards. The wool should be kept in bales, out of reach of contamination by the air of the surgical ward.

Guerin expressed his intention of following the advice of Pasteur, to purify his wool by subjecting it to a temperature of about 400° F. After cessation of all haemorrhage, the wound is washed out with a one per cent. solution of carbolic acid. Guerin uses silk ligatures and cuts the threads off short, except one end of the ligature which holds the main artery.

The first step varies according as immediate union is or is not to be sought. In the first case, sutures can be used, unless the surgeon has acquired sufficient skill in the application of the dressing to be able to secure accurate coaptation of the flaps by the pressure of the cotton. If immediate union is not to be attempted, and such is the practice generally preferred by Guerin, the space between the flaps is to be completely filled with little wads of loose cotton. Then the sheets and rollers of cotton-wool are to be wrapped and wound over and around the limb, evenly and methodically, so as to surround it with a homogeneous mass of even thickness, which must in all cases extend beyond the first joint above the seat of amputation.

To fix the cotton-wool securely by means of the bandages so as to prevent its getting displaced, and to apply, through its superincumbent mass to the parts beneath, a very considerable degree of elastic compression, is in Guerin's eyes, a very important factor of success in the use of his dressing. Gradually the cotton-wool gets covered at every point by the successive overlapping turns of the roller, which grows tighter and tighter as the application progresses. When completed, the dressing forms a firm, smooth, hard mass, of uniform consistency.

If all go well, the dressing may be left undisturbed for two or three weeks. The *state of the dressing*, and the *general condition of the patient*, says Dr. Curtis, will furnish the requisite information as to the condition of the wound.

Guerin formerly reapplied the wool, sometimes two or

three times, till the wound was completely healed, but it has been recognized that *after a certain stage of reparation was reached, further progress was very slow under the cotton-wool.* His practice now is to remove the first dressing at the end of the second, third or fourth week, then if the bone be well covered, the space between the flaps filled to a great extent with granulations, and the sanitary condition of the wards tolerably good, he brings the flaps together with plaster, and applies an ordinary dressing.

Dr. Curtis concludes his interesting paper with the following brief recapitulation of the merits and demerits of Guerin's dressing :

*Advantages.* — 1st. Entire or partial prevention of pyæmia, erysipelas, and hospital gangrene. 2nd. Painlessness. 3rd. Immobility of the injured parts, to which, with the firm but even compression, is due the antiphlogistic action of the dressing. 4th. The rarity of the dressings. 5th. The transportability of the patient, whose injured limb is protected from all chances of mechanical injury.

*Disadvantages.* — 1st. The necessity of ceaseless watching of every case by all the means at our command, including the daily use of the thermometer. 2nd. The slowness with which the last stages of reparation are effected under the cotton-wool. 3rd. The more or less disagreeable smell which the dressing generally acquires.

The cotton, it is said, acquires the disagreeable smell when applied to a sound limb for the same length of time.

## Hospitals.

### S T . J O S E P H ' S H O S P I T A L .

Service of Prof. Moses Gunn, M.D.

#### TRAUMATIC TETANUS.

Mary Binz, Irish—married to German—at 34. On the 19th of February, 1875, sustained a comminuted fracture of the lower third of the tibia and fibula, with compound dislocation of the ankle joint—Potts' fracture—and was admitted to St. Joseph's Hospital, February 25th.

March 2, at 8.00 P.M., complained to the Sister in charge, of sore throat and difficulty of swallowing. Was seen at 11.00 P.M. by Dr. Scheppers, the House Physician, who directed whisky and morphia. The first, she refused to take; of the second, she had one and a quarter grains in divided ( $\frac{1}{4}$  gr.) doses during the night.

March 3, 10.30 A.M. Was seen by Dr. Hay. At this time her pulse was 130; respirations, 22, easy; temperature,  $99.3^{\circ}$ ; she was bathed in hot sweat, her jaws were firmly clenched, the masseteric, sterno-cleido-mastoid and trapezius muscles quite rigid and hard to the touch. She swallows with difficulty, holds out her under lip with the thumb and finger of each hand to receive wine, her pupils are slightly contracted—probably from the morphia, the conjunctivæ are injected, and the face flushed. Dr. Hay ordered whisky, fl.  $\frac{3}{4}$  j, to be given every hour, and came to the city—four miles—to procure some ext. of calabar bean. Some of the fluid extract, said to contain one grain of the solid extract to the drop, was furnished by Messrs. Gale & Blocki, pharmacists, No. 85 South Clark street, of their own preparation.

At 4.15 P.M., the condition of the muscles was unchanged, except that the abdominal muscles were involved. The pulse was 150; respirations, 24; and tem-

perature, 99.8°. Dr. Hay injected one drop of the extract of the calabar bean--*physostigma venenosa*--diluted with ten drops of water, into the right arm. The patient asked to be raised, "to get the wind off my stomach." As she was lifted, the muscles became hard and the entire trunk rigid, so as to be elevated as one piece by the hand placed under the occiput.

She swallows the whisky with difficulty, holding out the under lip with the thumb and finger and both hands to receive it, sucking it between the interstices of her clenched teeth. She talks better, her intellect is perfectly clear, and she laughs and talks cheerfully of death, which she knows to be inevitable, saying, through her tightly closed teeth, "When I am dead you can raise me and cut me up and find out all about it," without manifesting any repugnance at the idea.

Prof. Gunn arrived—in response to a telegram from Dr. Hay—at 5.20 P. M., from which time the treatment was conducted by these gentlemen jointly. At this time there was marked relaxation in the rigidity and diminution in the hardness of the muscles, the pupils were contracted likewise, the specific effect of the *physostigma*—1 gr.—injected at 4.15, being thus doubly demonstrated. Pulse, 155; respirations, 24; temperature, 99.8°; the injection was repeated.

At 5.35 P. M., the muscles were softened but unequally, those of the right side more than those upon the left; the relaxation of the masseters admitting the opening of the jaws to the extent of a line. The patient was much distressed by the mucus accumulated in her mouth, by reason of her inability to swallow. The sweat was not so copious, and the respiration rather abdominal than thoracic. Dr. D. Q. Scheppers kindly volunteering to watch the case through the night, was left in charge, with instructions to repeat the injections sufficiently often to secure muscular relaxation, and the doses of whisky, beef essence and milk, as she could be induced to swal-

low. Dr. Scheppers' notes, taken throughout the night, are as follows :

"Eight P. M., pulse, 140; respirations, 22; temperature, 98.4°; easy, contented. Injected one drop. 9.00 P. M., "wants to sit up and have back beaten;" pulse, sitting up, 142; respirations, 23; temperature, 100°. Injected one drop. 10.00 P. M., pulse, 144; respirations, 22; temperature, 100.2°; passed about  $\frac{f}{3}$  ij of dark urine—the first since the onset of the attack, twenty-six hours—is very restless, wants to be moved often; complains of great pain in the foot—the fracture—when moved. 11.00 P. M., very restless, wants a drink, but refuses it when offered. Pulse, 150; respirations, 24; temperature, 100°. Fans herself. Injected one drop. 12.00, midnight. Pulse, 150; respirations, 24; temperature, 100°; fans herself; is very easy; calls for water continually, says "the cramps are coming up on me." Gave the "Sister" instructions about disposition of her clothing after her death. 12.30 A. M. Perspires; wants to be raised; is very rigid; refuses to take whisky, persistently; "wants the doctor to go to bed," for she will take nothing more and will not allow him to touch her. Pulse, 144; respirations, 24; temperature, 100°; rests a little. 1.15 A. M. Perspires, refuses to take anything. Pulse, 144; respirations, 24; temperature, 100°; rests a little. 2.30 A. M. Perspires; pulse, 142; respirations, 24; rests a little; feels very hot. 3.30 A. M. Pulse, 128; respirations, 24; sleeps, resting quietly, then wakes groaning with a spasm—says "it comes from my stomach to my head;" at intervals of from five to ten minutes wants to be fanned; "can't swallow." 5 o'clock, A. M. Injected one drop; pulse, 140. 7.30 A. M. Pulse, 132; respirations, 24. 8.15 A. M. Injected one drop. 9.15 A. M. Pulse, 138; respirations, 24; temperature, 100°. Injected one drop."

March 4, 10.00 A. M. Drs. Gunn and Hay arrived, found patient much changed for the worse; her countenance has assumed the characteristic anxious and aged look, is

much flushed and the forehead wrinkled ; reflex irritability is greatly exaggerated ; the jaws are tightly closed. She has still voluntary control over the facial muscles, except those supplied with innervation from the motor division of the fifth nerve. She complains of great thirst, but the application of a wet rag to her lips excites spasm, as does also touching the bed, and of " pain rising from the stomach to the throat ;" is sweating profusely. The spasms extend from the diaphragm upward, and as far down the upper extremities as the elbows, the forearms and hands being exempt. Pulse, 140 ; respirations, 32 ; temperature, 100.8°. Two drops of the physostigma extract were injected into the arm, and instructions given to repeat a similar dose hourly. Her intellect was perfectly clear, and her mind composed.

Dr. Scheppers' report from this hour is as follows :

" 11.00 A. M. Injected two drops of the extract. 12.00 M. A spasm occurred, which continued about a minute ; she became purple in the face, was very rigid, and was thought to be dying. At 1.00 P. M. two drops were injected. At 1.30 P. M. her pulse was 160—" too fast to be counted ;" respirations, 30 ; temperature, 101°. She " wished she could have a good drink of water." 2.00 P. M. Pulse, 158 ; respirations, 30 ; temperature, 101°. Calls for water, which she cannot swallow. Injected two drops. At 3.30 P. M. injected two drops ; pulse 160 ; respirations, 28 ; temperature, 101°. Takes a few drops of wine. The injections " hurt her very little ;" she " can hardly feel the puncture of the syringe." Sat up twenty minutes. 4.30 P. M. Pulse, 148 ; respirations, 38—during spasm, 64 ; injected two and a half drops. 5.30 P. M. Violent spasm ; face and upper extremities purple. Five minutes after the subsidence of the spasm the pulse was 162 ; respirations, 44 ; resting quietly. Injected two drops."

At 6.30 P. M., Dr. Hay arriving, found the patient much worse. Her appearance was now truly frightful ; the face was almost scarlet in color, covered with wrinkles, more especially upon the forehead, as if she had become

twenty years older within six hours. She was bathed in hot sweat ; her lips were livid, shrunken and dry ; her teeth firmly clenched ; her hands and forearms very cold and wet, contrasting strongly with the intense heat of the face and trunk. The pulse was 116, thread-like and irregular ; the respirations 40, largely abdominal ; the temperature, 102°. Three drops of the calabar bean extract were injected. The spasms recurred now at intervals of about two minutes, four or five in succession, of about five seconds duration each. The muscular rigidity was diminished, the muscles being quite soft in the intervals of the spasms. At 6.50 P. M., the pupils contracted unequally. At 7.40 P. M., four drops of the extract were injected, at which time her pulse was 140, irregular ; respirations, 40 ; temperature, 101.7° ; her mind perfectly tranquil and demeanor composed, except when interrupted by the prolonged cry which accompanied each spasm. The abdomen was largely distended. She describes the pains as coming up from the pubes—which she indicates with her hands—to her throat. Asked if she could live through the night, thinks "she cannot stand the pain," but is "perfectly reconciled to die."

From 9.00 P. M., the "Sister" in charge kept notes of the case as follows :

"10.40 P. M. Pulse very weak and slow, 20 ; temperature, 90°. 11.40 P. M. No pulse ; no injection since 9.40 P. M. ; very quiet, cold and clammy. 12.02 A. M. Died, in the effort to make the sign of the cross upon her breast."

March 5, 6.00 A.M. Dr. Scheppers reports the temperature, 90°. At 11.00 A. M. the temperature in the vagina was 94°, verified by Drs. Hay, Scheppers and Paul Simon.

In consequence of the violent opposition of the husband, no autopsy could be made.

March 6th. Through the kindness of Dr. Fernand Henrotin, the efficient County Physician, a Coroner's inquest was ordered in the interests of science, and the brain of the subject sent to Dr. Hay.

## NOTES BY DR. HAY.

Thirty-one grains of the calabar bean extract injected.  
Duration of attack, from 8.00 P. M., March 2, to 12.02  
A. M., March 5—52 hours.

No muscular relaxation immediately after death. The first spasm was the beginning of the rigor mortis.

Temperature, high throughout, sank at death, and rose four degrees ten hours after death.

Nerves involved were the motor division of the fifth, the eighth, and the cervico-dorsal portion of the spinal cord.

Respiration very slightly (relatively) accelerated throughout the attack.

Profuse sweat; no urine.

Cutaneous anaesthesia; exalted reflex irritability; brachial plexus involved to the elbow, not below; roots and trunks, not peripheral branches.

Sciatic plexus, through which the original impression must have been conveyed to the centre, received no morbid impulse (efferent). Brain has now been forty-five days in strong alcohol.

WALTER HAY.

## NOTE BY PROF. GUNN.

The limb being put up in pasteboards. On 26th Dr. Gunn saw and re-dressed the fracture, using an outside splint, with a foot-piece, correcting a somewhat imperfect position of foot, and leaving the wound accessible, which latter was dressed loose, compresses saturated with a mild solution of carbolic acid. There was moderate swelling, heat and pain in the parts.

On March 1st, the wound was suppurating fairly, and the patient expressed herself as being entirely comfortable. Her cheerfulness was remarkable, considering the gravity of the injury.

## Clinics.

### ILLINOIS CHARITABLE EYE AND EAR INFIRMARY.

*Clinical Lectures by Dr. E. L. HOLMES.*

#### CONJUNCTIVITIS OF NEW BORN INFANTS. MALIGNANT DISEASES OF THE EYE.

The two cases of conjunctivitis before us to-day present good examples of the results of the affection when neglected. Recalling to mind the nine other patients which you have seen the past few months, you will conclude that an institution like this seldom presents an example of the disease in its primary stage. You have not seen at the clinic an infant which was less than three weeks old. Two have been more than two months old.

You as physicians will be called upon to treat these patients in the early stages of the inflammation. It is your duty to know all that can be known regarding the best method of treatment. You have witnessed most sad examples of neglect; for two patients have been brought here blind, with both corneaæ sloughed.

There is scarcely any disease of the eye so easily controlled as this if the proper remedies are early applied. In the outset I must urge you to make a distinction between the treatment required early in the course of the disease, and that which you have witnessed here in the later stages.

I think in nearly all cases the affection is a simple catarrhal inflammation. The conjunctiva in infancy seems especially susceptible to the influences which produce catarrh. Conjunctivitis is very liable at this age to assume a purulent form. Statistics, based on the condition of the mother, as regards the presence of muco-purulent discharge from the vagina during labor, scarcely indicate that such discharges generally produce the conjunctivitis.

The symptoms of the disease vary in degree. There is generally at first a slight redness, with an increase of tears. A very rapid and extensive swelling is apt to follow, with an excessive quantity of thick purulent discharge. The swelling may be so great that it is almost impossible to evert the lids. Occasionally the swollen mucous membrane is found to be covered with a thin pellicle of partially organized lymph. This condition has been termed membranous conjunctivitis. This, however, is far from being diphtheritic inflammation, which is characterized by an exudation of organizable lymph *into* the substance of the conjunctiva, as well as on its surface. This form of diphtheria is most dangerous to the eye, but is fortunately rare in this country.

The treatment of conjunctivitis neonætorum is upon the whole very simple. In all cases it is of the utmost importance to keep the eyes scrupulously clean. To accomplish this requires some skill in turning the lids. Some authors recommend the use of very weak astringent solutions, thrown every hour or even oftener, from a syringe, between the lids. Unless the nurse has experience, there is danger of injuring the eye with the instrument; there is danger also, without care, that some of the discharge may be thrown into the eyes of those holding the patient. I apprehend the great difficulty you will meet in the thinly settled portions of the country will be the want of skilful nurses to follow your directions, if you trust to weak solutions often applied.

In the early stages of the disease, especially when the symptoms are slight, Alum gr. ij—v to the ounce; Zinc Sulph. gr. j—ij; Cupri Sulph. gr. j, are perhaps the astringents most commonly used.

But it not unfrequently happens that in spite of this treatment the inflammation assumes a most violent type. The swelling of the conjunctiva, œdemæ of the lids, and amount of the discharge, may become enormous. The cornea sometimes sloughs in two days, or may remain intact for weeks.

The cases you have seen here have, without exception, been very grave. In three of them the cornea of one eye, in two the corneæ of both eyes, had already been destroyed. In three more the corneæ had become more or less ulcerated. In all, the lids were much swollen, and the conjunctiva roughened to an extreme degree.

You have so frequently witnessed the method of treating these cases in the clinic that I need not dwell upon it now. After exposing the mucous membrane as extensively as possible, I gently soak up the pus and moisture with a soft bit of linen, and apply evenly but carefully over the whole surface a solution of Arg. Nit. ʒ j—ij to the ounce of water, with quite a large camel's hair pencil, *well moistened* but not *dripping* with the solution. The "granulations," without exception, you have seen disappear, and the cornea left normally clear, where there were not previously opacities or ulcerations. You have very often expressed surprise that so strong a solution should produce apparently no pain. I can rely on your testimony that, except while the babes' heads were held and the lids opened, the infants have never cried. They have day after day been carried from the clinic room after the treatment without uttering a sign of pain.

In case the hypertrophy of the conjunctiva is excessive to a remarkable degree, as in two cases, I am in the habit, immediately after the cautery, of excising a thin fold the whole length of the lid, as near the duplicature as possible. With such great swelling the piece excised comprises, in reality, but a minute portion of the true tissue. The local bleeding seems to aid in giving relief. Recent authorities recommend in extreme cases the elongation of the palpebral fissure at the external angle. This little operation relieves tension and causes considerable local depletion.

I cannot leave this subject without again impressing upon you most earnestly the importance of not confounding the treatment you have observed at the infirmary with

that which is appropriate for the ordinary cases you will meet as physicians in the first few days of the infant's life. Moreover, remember the rule I hold of utmost importance, that the stronger the solution of nitrate of silver you use, the less of it there should be on the brush with which it is applied. Without these two precautions you are in danger of doing more harm than good.

#### MALIGNANT DISEASES.

From the number of cancerous growths which you have recently observed here, you must not infer that they always occur so frequently at the clinic. The large number this winter is accidental.

We have two patients which I requested to be at the Infirmary to-day, presenting examples of sarcomatous tumors of the choroid, recurring in the orbit about six months after extirpation of the globe by other surgeons. I must refer you to the last clinic for a somewhat more extended account of choroidal sarcoma. In one case the orbit is completely filled. No surgical interference I believe is warrantable. In the other case, the tumor seems to be attached to the free ends of the muscles in some way, for the round tumor rotates quite freely with the motions of the other eye. Moreover, the tip of the finger can be pressed some distance between the orbit and tumor on every side. I am disposed to advise the removal of the growth. After the operation you perceive that the orbit is left apparently free from diseased tissue. It has been my experience, as, I believe, it is the general experience, that choroidal sarcoma, after the removal of the globe, is not prone to reappear in the orbit, but rather in some internal organ. This tumor is composed of two portions, one a soft black tissue, the other a hard white schirrus. I apprehend this last fact renders the prognosis bad as regards the return in the orbit.

You observe in this other patient, seventy years of age, an example of melanotic tumor of the conjunctiva. He states that for many years there was a small black spot

a few lines from the cornea in the upper and inner quarter of the ocular conjunctiva. About two years ago it began to enlarge, and was finally removed by his physician as a small pedunculated tumor.

We now find, five months after the operation, a tumor about three-eighths of an inch in diameter and somewhat pedunculated. It is not apparently attached to the sclerotic, for it can be freely moved over this membrane. I think the patient's comfort and prospect of prolonged life will be enhanced by the removal of the tumor, with quite an extensive portion of the conjunctiva and subconjunctival tissue.

The contraction produced by the cicatrization of this extensive wound, I have informed the patient, will undoubtedly cause the globe to be drawn permanently upward and inward, and consequently restrict the movements of the eye.

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## Selections.

(From the Psychological and Medico-Legal Journal.)

### THE NEUROTIC ORIGIN OF DISEASE, AND THE ACTION OF REMEDIES ON THE NERVOUS SYSTEM.

BY FREDERIC D. LENTE, M.D.,

MEMBER OF THE COUNCIL OF THE NEW YORK NEUROLOGICAL SOCIETY.

Read before the New York Neurological Society, Dec. 7, 1874.

*Mr. President and Gentlemen :*

Moritz Romberg, Professor of Medicine in the University of Berlin, commences the preface to the first edition of his classical work on "Diseases of the Nervous System" with the following quotation: "I fear it will be a long time before combined efforts will enable a medical author to arrange and accurately describe the diseases of the nervous system. The position we at present occupy is a very inferior one. Such was the opinion of Sir Charles Bell. A decennium has since passed. Many laborers have been at work. We have a rich treasury of

materials, and yet we possess no work on nervous diseases which meets the requirements of science. The blame lies, in a measure, with the distinguished members of our profession who have been deterred by a fear that pathological investigations would fail to cope with the advanced state of physiological inquiry; in others, the fault is to be attributed to that mental indolence which gives the preference to the easy path of tradition, and with foolish skepticism rejects everything that is new. But in no department of pathology has physiology exerted so great an influence, nowhere has free research achieved so glorious a victory over dull, traditional routine, as in the doctrine of nervous diseases."

This was in 1840. Let us see what he says ten years later, for he thus indicates the history of our progress in this direction: "The hope expressed in a former edition has only been partly fulfilled. The majority of students have been attracted by the school which seeks to base the science of medicine exclusively upon pathological anatomy and chemistry. This has given rise to new errors, as the doctrine of the crases most clearly shows. The study of nervous diseases, which some persons have refused to acknowledge as anything but the manifestation of other morbid processes, has been declared a fruitless research, and in some schools has been almost interdicted. If this was the case in the universities, matters were necessarily in a worse condition in daily life. Practitioners chased an illusion and caricature called spinal irritation, with which they satisfied their craving for explanation, and condensed neuro-pathology into a space which could be covered with the tip of the finger. To guard against greater debasement, we must enter again upon the path which the master-mind of Charles Bell, the Harvey of our century, has opened to us."

If this was the case in critical and classical Germany, how much more true was it in the case of other countries. A quarter of a century has rolled by since Romberg thus rather sorrowfully expressed himself. Where are we now? We are certainly not where the wonderful improvements in every other branch of medical science should have placed us. But the past few years have afforded indications of a brighter future. Minds of the highest calibre have been devoting themselves to this study. Monographs, treatises, and periodicals, in different languages and of great value, have appeared, to entice us on, and to light us along this difficult but most inter-

esting path of scientific investigation ; none more interesting, none more practically useful, in the estimation of those most competent to judge, both in this country and in Europe, than that of our countryman, Prof. Hammond. But the teaching of our schools, and our systematic treatises on therapeutics, and our hospital clinics, are far behind our special literature. Their pathological views, as a general rule, show but little change. Mr. Wallace Wood, in a well-written article in the last number of the Psychological Journal, indulges in the hope that "the next five years will inaugurate a new system, which will promise as much or more than the brilliant but premature scheme of Gall." I think we may safely predict a future like this for the therapeutics as well as for the physiology of the nervous system.

For some years past my own experience has impressed me with the belief that in most diseases, especially those of an acute character, the morbid impression is first made on the nervous system, either *directly*, as in the case of the mucous membranes, where the peripheral nerves are more accessible to the immediate action of toxic agents ; or *indirectly*, through the medium of the blood. That the remedies, therefore, most likely to exert an *abortive* effect on disease ; or, when that is not attainable, the speediest and happiest relief, are those which are supposed to act especially on the nervous system ; and that our ordinary treatment, by acting in a more indirect, and, therefore, less speedy manner, as well as by disturbing other portions and other organs of the body not involved in the morbid process, is slower, less certain, and more unpleasant in producing their curative effects. I ask your attention, in the first place, to a review of the history and therapeutics of certain diseases not commonly considered neuroses.

And, first, of "malarious" fever, and especially the intermittent form, as this is a disease of paramount importance to very many of us just now ; its unusual prevalence everywhere, but especially in localities commonly considered remarkably exempt, being one of the most remarkable of the inexplicable phenomena characterizing its history in all ages.

I have no theory as to the causation of "malaria" to support. I am as much confounded by its vagaries and seeming inconsistencies as any of its hosts of distinguished investigators. But whatever the cause may be, whether *veg<sup>e</sup>to-aerial* or *diurnal* vicissitudes of tempera-

ture and moisture, or both combined, or gaseous products, or the fungus theory, so ingeniously and learnedly set forth by the late J. K. Mitchell, of Philadelphia, it seems to act primarily on the nervous system, and its morbid energy to be most expended in assaults on that system.\* The evidence adduced, both from the arguments and data of those adopting a certain theory of causation, and of those virulently opposing it, alike tends to support this idea. Thus it is admitted, I think, by all, that *repose*, and especially *repose at night*, renders the body most liable to miasmatic influences; while exercise, even in what is supposed to be the hotbed of the poison, is preventive. Every one knows how much more liable we are to "take cold" when sleeping, or even when in a drowsy state, and especially at night, unless the body has an additional covering, and how great a protection exercise is. In both cases the nervous system is more impressible in the one state than in the other. Exercise and occupation, in all *epidemics* of whatever kind, are the great preventives; indolence and fear, causing greater nervous impressibility, are our worst enemies. All army surgeons of large experience can corroborate this.

The sudden onset of the disease, instances of which abound in all their writings, point to the primary affection of the nervous system. "Exposure for a single hour at night," says Mitchell,† sometimes produces an almost immediate attack, sometimes causes a *tendency*, not expressed perhaps for some months." Mungo Park, alluding to African experience, says: "The rain had not continued three minutes before many of the soldiers were affected with vomiting, others fell asleep, and seemed as if intoxicated. *Twelve of the soldiers were ill the next day.*" He felt the same symptoms himself. The following cases, occurring lately at Whitworth Hospital, reported in the Irish Hosp. Gaz. (Boston Med. and Surg. Jour., Nov., 1874), afford an additional illustration: Two hospital nurses, accustomed to hospital sights, odors and sounds, were subjected to a most remarkably fetid odor from the alvine dejection of a dead body. Within ten minutes one fell down, vomited, and became unconscious. After several remedies, an ice-bag to the nape restored

\* Virchow has lately said: "Fever consists essentially in elevation of temperature, which must arise in increased tissue-change, and have its immediate cause in *alterations of the nervous system.*"

† "Essays," edited by S. Weir Mitchell.

consciousness in a short time. The other nurse vomited while at the dead woman's bedside, went to her room, and fell down in an unconscious state. Half an hour after the ice-bag was applied to the spine she regained consciousness. Dr. McDowell was of opinion that the medulla oblongata was under the toxic influence of the noxious gases.

As explanatory of the manner in which the fever-poison may thus suddenly influence the system, I adduce a brief account of a very interesting experiment performed a few days ago by Dr. Horatio Wood, of Philadelphia, and of which he was kind enough to give me the particulars: He divided the cord of a dog at the junction of the *medulla* with the *pons varolii*, and, of course, above the vaso-motor centres. Although the lateral sinus was accidentally divided, an accident difficult to avoid in so high a division, and "three-fourths of a pint of blood lost," which should have *reduced* the temperature several degrees, there was a rapid rise to 104° F. (the normal temperature of the animal being about 102°). Here all the controlling influence on the peripheral nerves was lost, just as it is when a powerful toxic impression is made from without. *Cholera Asiatica* not unfrequently produces this sudden overwhelming effect on the nerve-centres, and patients drop suddenly.

Periodicity, or tendency to relapse at certain intervals, the most marked, by many considered the pathognomonic symptom of malaria, also indicates the nervous system as the seat of the disease. This and incubation, with which it is intimately connected, present, perhaps, the most interesting, the most extraordinary and inexplicable phenomena connected with the history of disease. That an exposure should not manifest its effects on the system for a week, or a month, or even many months, and should then, apparently without provocation, induce suddenly the most striking and even alarming symptoms: this phenomenon, this tendency to relapse, is often as annoying and perplexing to the physician as to the patient, and it is practically of the utmost importance that its mystery should be unraveled. The very accuracy as to time points to the nervous system as that portion of the body to which we should direct our investigations; since, if we look *within* the body for the cause, as the slow accumulation or the growth of the *materies morbi* to the point of saturation and explosion, the blood itself,

or any organ except the nerves, ought, it would seem, to give some indication of diseased action. And, on the other hand, if we look *without*, or for external impressions, "exciting causes," the very suddenness of the attack would seem to indicate that it must be through the medium of the same system.\* Many cases might be cited in which none but *nervous* manifestations follow exposure to malarious influence—neuralgia, especially supra-orbital, for instance. A man, surrounded by malarious disease in all its forms, recently applied to me with a most atrocious pain over the left eye, coming on every other day at or near a particular hour. He could not credit my assertion that it was "fever and ague," as he had experienced none of the ordinary symptoms whatever. But a few full doses of quinine sent him to his work rejoicing. Periodicity, as has been already remarked, instead of indicating malarious fever, is rather a characteristic of nervous disease. Aitken adduces the periodicity of the phenomena of fever as evidence, not that the fever is of a particular *type*, but that the *nervous system* is influenced; also, the beneficial effect of quinine as corroborative evidence. We observe it markedly in epilepsy. Thus, in a case now under my charge, the paroxysms came on regularly every two weeks, on Thursday, even when the subject was at work, and feeling as well as usual. In another case the attack occurred every four weeks, at night, for a long period. In a third case, under the care of Prof. Hammond, which I saw to-day, and the particulars of which I obtained from the patient's mother, the fits, while the patient was under the influence of the amyl nitrite, taken three times a day, came on as follows: Four days' interval, 3 fits; 4 days' interval, 1 fit;  $4\frac{1}{2}$  days, 2 fits;  $4\frac{1}{2}$  days, 2 fits; 4 days, 1 fit;  $2\frac{1}{2}$  days, 1 fit.

The symptoms following the ingestion of poisons sometimes show marked periodicity. Christison, as quoted by J. K. Mitchell, informs us "that a whole family, consisting of a woman and four children, were attacked by a tertian fever by living for four months on *edible mushrooms*." The husband, who lived on other fare, escaped the symptoms. "Westerhoff observed, in those who

\* There is sometimes a marked periodicity in *chorea*, and Dr. Weir Mitchell, who is eliciting some curious and interesting phenomena in his investigations concerning this disease, finds that the attacks usually recur in the spring.

were poisoned by mouldy food, an *intermittent somnolency*. M. Gassand saw cases of *ergotism*, where the sensations, either of heat or cold, were *intermittent*." Other writers mention this feature. "The *mental disturbance* intermitted in one case, *inflamed eyes* in another, and all the phenomena in a third." "The Dic. des Sci. Med. reports cases of this kind, in which occurred the *most acute pains* which were *intermittent*." In these cases it was also noted that the preparations of *bark* were the most effectual remedies. Dr. Mitchell adduces these facts, among hosts of others, in support of his fungus theory of "malaria." Whether he is right or not, they strongly support the position I am endeavoring to sustain. His essay will well repay perusal. But the most striking instance of marked periodicity occurring from a purely nervous disturbance, happened in a case published by me in the Amer. Jour. Med. Sci. for July, 1862. A girl, eleven years of age, and in fair health, not having been subjected to any malarious influence whatever, but of an exceedingly nervous temperament, received a wound of the supra-orbital region, from a fragment of copper-cap, producing amaurosis. The removal of the foreign body almost immediately relieved the defect of vision; but, on the second night after, the eye became much inflamed, deep-seated pain set in, nausea, coldness, and "numbness" of the extremities, and great nervous excitement. Pulse and skin natural; no fever. Anodynes were rejected by the stomach, and the pain was much mitigated by tinct. aconite locally applied. Next morning was pretty comfortable. This was on the 8th of July. On the 10th, another severe attack supervened; the pain was particularly severe in the back of the neck, with inability to flex the neck forward. Skin hot, pulse frequent; vomited. Ordered mild antispasmodics. Fell asleep after one dose, and slept quietly. In the morning quite comfortable; skin pleasant; pulse natural. On the 12th, had a similar attack, except that the skin and pulse were but slightly affected. One dose put her to sleep. She was now ordered a grain of quinine, as a tonic, three times a day. Her next attack, on the 14th, was similar but very slight. She had been ordered five grains quinine on that day as a prophylactic. On the 16th had a violent attack of pain in the eye, but no other symptom. Quinine had been omitted by mistake. The eye looks much worse, and vision is much impaired. July 30th:

Vision perfect. Dec. 14th: Patient has continued well, but has *visus dimidiatus* of the affected eye.

Robert Jackson, who wrote on this subject three-quarters of a century ago, seems to have had a clearer idea of the causes and effects of malaria than any writer of more modern times; and had his knowledge of the anatomy and physiology of the nervous system been equal to that of the present day, might have solved some of the intricate problems which he have perplexed us ever since. All his theories, his experiences, and his observations seem to converge towards the nervous system as the *fons et origo* of the diseased action, and to the necessity of sustaining this, and protecting it from morbid influences, not by any special remedy, but by a combination of judicious management, hygienic and therapeutical, moral and mental, as well as physical. Were it not for fear of rendering myself tedious, I would like to quote a page or two from his work, modestly entitled, "Remarks on the Constitution of the Medical Department of the British Army," published in 1803, which may be found in the library of the New York Hospital.

It may seem to be diverging from our line of investigation to cite *articular rheumatism* as an example of a neurosis. But I ask your attention, for a few minutes, to some well-known facts in its history and treatment, and also to a remarkable memoir of Dr. J. K. Mitchell, to be found in the volume of essays to which allusion has already been made. He attempts to prove rheumatism a neurosis, and refers its phenomena all to a spinal origin. His cases show a striking resemblance, in their articular symptoms, to acute rheumatism; and that these are caused by the spinal disease or injury, he fully demonstrates. But they all seem to be cases of organic disease of the spine, or injury of the *medulla*, except one, which I abridge.

Robert Gordon, well known as the carrier of Poulson's Daily Advertiser, 56 years of age, vigorous constitution and active habits, was the subject of the following attack. Observing a severe pain in his right heel and ankle, immediately followed by redness, heat, and tumefaction, he caused himself to be largely bled, and took salts and magnesia. On the following day the symptoms increased and the ankle and knee of the opposite side becoming affected, he was confined to bed.

On the third day, my first visit was made. Had then a full, strong, frequent pulse, flushed face, dry skin,

whitened tongue, and complained much of the severity of the pain in his legs, and his incapacity to endure the slightest pressure or motion. I directed the application of seventeen cups to the lumbar region, so as to abstract twelve or sixteen ounces of blood. Next morning, I found the pain almost entirely gone; does not complain of moderate pressure, and is able to move his legs without inconvenience. Ordered a draught of salts and magnesia, and a lotion. Third day: Pain in legs scarcely perceptible, but the shoulders, elbows and wrists are beginning to exhibit marks of severe inflammation expressed by pain, tumefaction, heat, and redness. Ordered twelve cups to the cervical spine. Fourth day: Patient sits up; complains of stiffness, but no pain except in one wrist, and that very slight. Epsom salts and magnesia. Fifth day: Finding nothing for which to prescribe, arranged patient's diet, recommended occasional use of aperients, and took leave of the case.

Called on tenth day to inquire into the results, and found there had been no return of the disease. Since that time a severe winter has passed, and he has continued in a good state of health.

The reader will perceive, says the reporter, that the general bleeding, though very copious, proved of no service, and that the large local bleeding in the lumbar region benefited solely that part of the disease which lay at the peripheral extremities of the nerves supplied by the lower end of the spinal marrow. The inflammation in the upper extremities continued afterwards in progress, and was arrested only when cups were applied over the cervical spine. In this connection I refer you to an article on "Neuroses of the Joints," in the Sept. No. of The Psych. and Med.-Leg. Jour., translated from the German of Moritz Meyer. In concluding his essay on rheumatism, Dr. Mitchell adverts to "the close connection between rheumatism and certain diseases of the mucous and fibrous tissues of the eyes, nose, mouth, alimentary canal, bladder, and urethra. In many cases, diarrhoea and dysentery are found to alternate with rheumatism of the extremities, and particularly of the lower limbs; wherever such cases happen, they are always found to yield more readily to spinal treatment than to any other mode of cure, thus affording another proof of the spinal origin of these cases." In a case of severe pruritus, reported in the first number of the Archives of Dermatology, by Dr. Beard, for Dr. Kinsman of Ohio, the latter

remarks: "The moment the current (of electricity) is passed along the spine, the pruritus ceases." Dr. Beard also reports a case of herpes zoster frontalis for Dr. Bulkley, cured by galvanism. I have thus also promptly relieved cases of herpes zoster. The spinal origin of many cutaneous affections is now well established, therefore such illustrations need not to be multiplied. With reference, however, to the last named disease, I desire to refer briefly to some remarkable evidences of its purely neurotic character, as well as of other vesicular affections, contained in M. Vulpian's recent French edit. of S. Weir Mitchell's "Lesions of the Nerves," and hence, to the very great importance, in all cases of very obstinate eczematous or bullous diseases, of paying special attention to the influence of the nerve centres, and of possible nerve lesions, as a cause. One case is that in which a ball, traversing the chest, without injury to the skin, except at points of entrance and exit, induced a very painful herpetic eruption. Brown-Sequard mentions a contusion of the brachial nerve causing a herpetic eruption all along its course. Sometimes the eruption is analogous to that of pemphigus. M. Raynaud cites a case in which an injury of the trunk of the "cubital nerve" was followed by an eruption along the whole course of the nerve. "The list of such facts," says Mitchell, "may be extended as far as one may wish." He says that his term "eczematous" to such affections has been sharply criticized by Charcot and Handfield Jones. How little should we regard the trifling eruption, sometimes only lasting a few days, which marks the onset of *herpes zoster*, when the neuralgic symptoms are so much more pronounced and so difficult of cure; sometimes, indeed, under the old methods of treatment, lasting through the remainder of life. Electricity now holds out a prospect of a speedy cure. In fact, this disease is as much out of place in a work on *skin* diseases, as a whale would be in a treatise on fishes.

The very great uncertainty attending the classical treatment of rheumatism through the blood, and the effects of other treatment acting in a totally different manner, do not give much support to the theory of blood-poison. Quinine I have found to act sometimes with great promptitude in aborting the disease when acute, even when there is no evidence of malarious poison. Some rely upon it as a routine treatment. M. See, of La Charite, remarks in a lecture recently delivered there,

that he considers it of great value in acute rheumatism, and always returns to it with benefit after a trial of all other remedies. He says, "Its effect is on the spinal cord, in lowering its irritability, and thus diminishing the sensibility to pain, and lowering reflex excitability, thus reducing the afflux of blood to the inflamed joints." "It may be mentioned," says the *Lancet*, August 8, 1874, "that this mode of treatment is adopted by a large number of the leading physicians of Paris, either alone or with other means, and they all appear to be unanimous in its favor." But to be successful, the drug must be administered with no niggard hand. The blister, or counter-irritant treatment as it is sometimes called, is not seldom promptly successful, if carried out with the firmness which only will insure success. The blisters require to be large, and to be applied freely, and rarely give any annoyance. Patients often beg for their repetition. Ice to the joints is a favorite and successful remedy with some. Esmarch and others used it with great success in the Franco-German war. Dr. Da Costa has recently used the bromides successfully.

The application of cold to the whole surface of the body, or cold bathing, packing or affusion, in cases of extreme danger both in rheumatism and fevers, is a still more potent method of treatment, and affords, perhaps, a still stronger evidence of the neurotic character of these diseases. When the temperature in these cases runs up to  $109^{\circ}$  or  $110^{\circ}$ , though it may go still higher, it was found that death was the almost inevitable result, until after the adoption of a certain bold treatment, which consists in a rapid reduction of the abnormal heat by the application of cold to the whole surface.\* It appears to be generally understood that the good effect is due to the direct abstraction of heat. But it is doubtful if this has much to do with it, if it has anything at all. Frequently the internal temperature continues to fall for some time after the patient has been put into bed and covered up, to such an extent as to threaten serious consequences at times. Now, the mere abstraction of heat by direct action of the cold must cease the moment the cold is withdrawn from the surface, and we must look for some explanation of the continued fall of temperature. Then there are cases in the so-called hysterical

\* The treatment is not new as regards fevers, but was proposed and largely practiced by Currie, but fell into comparative disuse.

conditions of females, where the surface is habitually cold and clammy, and yet the best remedy is the cold shower bath. I am happy to be able to adduce the experience of so able and careful an observer as Robert Jackson, who speaks, as regards fevers, from an experience of the largest kind. "It is possible," he says, (*opus cit.*), "that excess of heat may exist, and it actually does exist, without *superficial excitability*, that is, without a due share of sensibility of surface (*italics mine*) both in the early period and in the later stages of fever. Such condition of fever is common in spring, common in Europeans soon after their arrival in tropical climates, both in the commencement and in the after-period of the disease, either as connected with plethora, or with internal congestion. The heat is then often ardent—particularly on the trunk of the body. A thermometer, in this case, is a fallacious guide. It indicates a high temperature, but experience proves that cold bathing does no good; it probably does harm in the cases connected with internal congestion. To trials, in such cases, it is believed the credit of the remedy has been sacrificed in the fever of the West Indies, and probably in that of America." That is to say, in modern phraseology, the cutaneous nerves must be in such a state as to receive and convey an impression to the nervous centres, thence to be transmitted to the vaso-motor nerves of the internal organs, contracting their minute vessels, diminishing hyperæmia, arresting, for the time at least, destructive metamorphosis of tissue, and over-production of animal heat.\*

As a remarkable illustration of the powerful and sometimes destructive effect of applications to the surface, when too extensive, too severe, or too prolonged, I remind you of the results which followed the old experiment of varnishing animals, and the death of the child coated with gold leaf, to represent the golden age, in a procession during the reign of Louis XIV. The cause of death in these cases has been variously attributed to the great fall of temperature which ensues, to the complete arrest of perspiration, to asphyxia, etc. But lately, Dr. Feinberg has been reinvestigating the subject by

\* It is not contended that this is the only mode by which the impression may act on the nervous centres. In fact, the *inhibitory* action developed in those centres, as will be shown by examples, may be still more powerful, even to the production of fatal consequences.

further experiments, and has come to the conclusion that it is "from paralysis of the *vaso-motor nerves* all over the body, producing excessive dilatation of the vessels, and extensive extravasations. In the spinal cord, especially, was there congestion and extravasation." There was decided sinking of the temperature. He attributes the vaso-motor effect to intense irritation of the sensory nerves of the skin. His specimens were examined by the celebrated histologist, Frey, and his facts confirmed by him.

The coincidence of *excessive dilatation* of the capillaries of the viscera, with marked *reduction* of temperature, may seem to conflict with the views frequently expressed or implied in this paper, as to the increase or diminution of temperature from vasal dilatation or contraction respectively, though we have been careful not to attribute it exclusively to this. But we must not forget that, in Feinberg's experiments, this vaso-motor paralysis is carried to an *extreme* degree. In like manner, though the physiological effect of some of the drugs, to which your attention will presently be asked, is to *contract* the vessels, they are found, if pushed to an extreme or fatal degree, to do just the opposite; and this ought always to be borne in mind in estimating the peculiar properties and therapeutic value of these powerful agents. So here, the immense reduction of the intra-vascular pressure, producing sinking of the heart's action, and almost complete arrest of the circulation in the capillaries, would naturally induce a fall of temperature; whereas the varnishing of a smaller portion of the surface would have doubtless produced quite a different condition of the visceral vessels.

To return to a consideration of the *joint* affections of rheumatism, I desire to remind you of the many instances where pain and inflammation of the larger joints supervene on injuries, and suppurative diseases of the extremities, and on other conditions giving rise to what is usually called septicæmia or pyæmia, supposed to be due to blood-poisoning, or to a low grade of inflammation extending along the veins and absorbents. A patient of mine, a lady eighty-three years old, recently died of senile gangrene of the right foot, advancing slowly at first, but finally running up the leg with great rapidity, attended by no chill or febrile reaction, but affecting the sensorium profoundly; simultaneously was developed a "rheumatic" inflammation of both wrists, and for some

days the only pain which she appeared to suffer was due to this. Here there was no evidence whatever of blood-poisoning. In view of this, and many similar facts, it would be well to review our ideas of the causation of these intercurrent phenomena, and to remember the connection which may exist between what has been said about neuralgia and the spinal origin of rheumatism, and the fact that in the cases just mentioned, those of supposed septicaemia, quinine is now considered the sheet-anchor. I am told that Sir William Gull, twenty years ago, claimed a spinal origin for rheumatism, and thought the idea original, but was preceded a quarter of a century by our distinguished countryman.

We are, of course, not able to experiment on the human body as we do on animals, in order to solve physiological problems, but accident frequently comes to our aid; and the evils of war are often turned to good account. I desire to call your attention to a few instances of this kind, which serve to elucidate the influence of the nervous system in the production and cure of disease.

The following case fell under my notice while on a visit to Saratoga Springs, in the autumn of this year, and, I think, demonstrates that which had only been previously done by experiments on animals, what Austin Flint, in his "Physiology," calls the starting-point of our definite knowledge of the functions of the sympathetic nervous system—"that the influence of the sympathetic nerve in the neck was propagated from below upward toward the head, and not from the brain downward." This was carried further by Brown-Séquard in 1852, whose experiments led to the discovery of the vaso-motor nerves.

*Case.*—Theophilus S., stair builder, fell, on June 22d, 1874, twenty-five feet; the spinal column, at the base of the neck, and from that to the right shoulder, striking a hand-rail. The blow was thus received rather on the right side of the spine than directly upon it. Had always been well, and had never been injured until the Franco-German war, when he was stunned while in charge of an ambulance by the explosion of a shell. He soon recovered, and is not aware that any ill consequences followed. Last winter he was greatly chilled by a somewhat prolonged exposure, since which he has not been quite so well as usual. After his fall, he was unconscious for an hour. Dr. Whiting saw him at once. There was no indication of any injury to the head. On returning to consciousness he complained of a most intense pain in

the occipital region, low down ; the least movement of his body gave him intense pain at *seat of injury*, and nowhere else. He also felt as if the whole right side, the arm, leg, etc., "were dead." No uneasy sensation in left side. His vision was also impaired, and he had "noises in his ears." He required a hypodermic dose of morphine for his headache. Was constipated for several days, and had retention of urine, lasting three days, and then passed his water, and continued to do so. For five days could not move his right lower extremity at all. Could move his fingers, but any attempt at movement of the arm produced violent pain in the spine. Motion and sensation in the limbs returned very gradually. For a while the headache required anodynes, and gradually subsided.

Five weeks after the accident he felt so much better, that, with the aid of a stick and limping, he walked about a quarter of a mile to the doctor's office. A day or two after, he was much worse, and was put to bed again. Severe gastric and abdominal symptoms set in. After eating one or two mouthfuls of food, there was so sudden and enormous an accumulation of gas that he felt as if he would burst ; had other symptoms of indigestion, and an obstinate diarrhea set in. Headache also returned, and required the hypodermic injections, which acted very slowly. About eight weeks after the first relapse he felt so much improved that he went to work ; worked only two hours and a half, and with great difficulty. Pain commenced in his shoulder and back, then his fingers stiffened so that he could not hold his hammer ; headache set in, and his old diarrhea ; he could scarcely get home on account of the latter, stopping three times to relieve himself. He was better, after a rest in bed for some days. It was soon after this, when he was able to walk about a little, that he came under my notice in Dr. Whiting's office. His prominent symptoms were as follows : vision imperfect ; since his first relapse sees everything sometimes blue, sometimes red ; and, on lying down, sees things "quivering," and in this position his headache, now very moderate, is decidedly increased ; sleeps badly, was somewhat relieved by moderate doses of bromide of potassium. Sleeps pretty well when *sitting* in an easy-chair, and better in the daytime. His diarrhea is uncontrollable by opiates and astringents, except for a short time. When his bowels are loose, his micturition is painful. The sudden puffing up of his stomach, on taking

a few morsels of food, was a marked and intractable symptom for some time, but he is now, in a great measure, relieved. Another very curious symptom has lately appeared ; his evacuations are attended by an intense burning sensation in the bowels and around the anus, "*as if sprinkled with red pepper.*"

I have not the space to comment on this remarkable case. I showed him to Dr. Hammond, and Dr. Cross also saw him. They could not make up their minds that all his cerebral symptoms were due to the spinal injury. Perhaps they were not. But the abdominal symptoms certainly were ; and, in connection with this, and with the remarks on the spinal origin of rheumatism, and the nervous origin of fever, I adduce other cases of abdominal disease caused by and causing affections of the nervous system, and relieved by remedies addressed to that system.\*

A remarkable case of convulsions and coma, caused by a slight abdominal irritation, is related in a letter from Paris, from the parent of the patient, and published in the Boston Med. and Surg. Jour., for Oct. 29, 1874 : "The child while at dinner, and in perfect health, was suddenly seized with a convulsion of a most violent and alarming nature, becoming rigid, eyes fixed, pupils much dilated, teeth clenched, accompanied by the most distressing gasping for breath, and complete unconsciousness. The physicians summoned tried the warm bath, artificial respiration, etc. ; the *hot* bath, dashing cold water. One proposed a hypodermic injection of morphia, which seemed to relieve the violence of the spasms. Sir John Rose Cormack arriving, suggested another hypodermic injection, and in case of failure, *tracheotomy*. The injection fortunately succeeded ; he became narcotized, after having been in violent convulsions for two hours. The diagnosis was *worms*. The following day he awoke quite relieved. He subsequently passed two or three worms.†

\* See case, very similar, in many respects, to that of Shires, in London Practitioner for March, 1874, extracted from Deutsch Archiv für Klin. Med 1873, xi. The very first application of the galvanic current to the left cervical sympathetic relieved the violent cerebral symptoms materially.

† See a remarkably interesting case of most serious cerebral symptoms, caused by constipation, in Brit. Med. Jour., August 8, 1874 : Med. News and Lib., Oct., 1874. Since the above account was written, I have met with a full and extremely interesting account of its history, in the London Medical Times and Gazette, from the pen of Sir John himself. This I propose to notice more fully in connection with a case treated by me within the past week.

I had a case very similar to this, in a child nine years old ; the coma was complete for some hours, and death seemed impending. I also diagnosed correctly, as the event proved. There is really nothing remarkable about these cases, except as regards the age. Scores of *infants* in our large cities die every summer from convulsions induced by abdominal irritation and reflex action, many of whom might be saved by a better appreciation of neuro-pathology, but especially by a more liberal use of neurot-ics, and by bolder doses of *opium*, with the temporary aid afforded by chloroform inhalation. Reflex meningeal irri-tation is still constantly mistaken for inflammation, and the traditional horror of opium in meningeal and cerebral diseases of infants still stays the hand of the physician, and consigns many a curable patient to an early and untimely grave. In an article on the treatment of vomit-ing by electricity, published in the second number of Beard's "Archives of Neurology and Electrology," will be found three cases there related by me, remarkably illustrating the nervous, or, if you choose, malarious origin of diarrhoea, and its prompt arrest by electricity, after total failure of all other ordinary remedies—the cases of Mrs. L., Mrs. M. C., and the girl A. D. In the first, however, the extract of ergot, given for a different pur-pose in large doses, by hypodermic injection, was largely instrumental in the cure. And here I will supply an im-portant omission in the case of Theophilus S. I suggested to Dr. Whiting the use of ergot and bromide of potas-sium for the diarrhoea ; and doses of half a drachm (fl. ex.) increased to a drachm of the former, with half-drachm doses of the latter, relieved him completely in one week. The fluid extract of *Eucalyptus Globulus* (which, however, differs from ergot in possessing astringent properties) has a similar effect to ergot in these cases, an effect not due to its astringent action, as proved by the previous failure of other more active remedies of this class. A combina-tion of the two is excellent ; and the powerful tonic property of the *eucalyptus* aids essentially. Prof. Ham-mon has found this combination admirable in a similar condition of the mucous membrane of the bladder, arising from an atonic condition of its muscles, as well as the muscular coats of its vessels, and constituting catarrh of the bladder, with an alkaline condition of the urine.

Dr. Austin Flint, Jr., in his recent work on the "Physiology of the Nervous System," publishes the results of the experiments of Dr. Moreau, in Paris, in

1860, which are strikingly illustrative of the preceding suggestions and cases. "In those experiments the abdomen was opened in a fasting animal, and three loops of intestine, from four to eight inches in length, were isolated by two ligatures. All of the nerves passing to the middle loop were divided, taking care to avoid the blood-vessels. The intestines were then replaced, and the wound in the abdomen closed with sutures. The next day the animal was killed. The two loops, with the nerves intact, were found empty, as is normal in fasting animals, and the mucous membrane was dry; but the loop, with the nerves divided, was found filled with a clear, alkaline liquid, colorless, and slightly opaline." This experiment has an important bearing on the pathology of *cholera Asiatica*, the profuse watery diarrhoea, without abdominal pain, indicating mere want of innervation, rather than an attempt to eliminate a poison, and the subsequent cramps in the voluntary muscles, pointing very decidedly to the nervous system as that mainly, if not exclusively, affected by the poison, and to the necessity for a treatment which may present, at least, more uniformity of action than any which has heretofore been devised. For the history of this destructive disease, as far as treatment is concerned, is far from creditable to us as a profession; those methods, based on totally different pathological views, showing about an equal amount of mortality.

The peculiar effect of our cathartics, especially when they are given for their so-called derivative action, can only be explained by their reflux influence on the brain, and its vaso-motor vessels, rather than by unloading the abdominal vessels, which is also a means, but a more tardy and less efficient, since the impression felt in the brain is almost instantaneous. This is felt sometimes even after an ordinary evacuation, or even after the passage of gas. In the same manner a sharp pain in the cardiac region is instantly relieved by the sudden passage of gas from one portion of the intestines to another, the pressure on certain nerves being thus removed. All these apparently trifling phenomena, unimportant individually, are valuable when studied together.

Returning to the consideration of accidents and the influence of nervous shock in the production and cure of nervous affections, I merely refer to the two following cases published by me while house-surgeon to the New York Hospital. A negro with delirium tremens, upon

whom I had vainly exhausted all my remedies, broke from his attendant and sprang from the third-story window, falling on the stone stoop below, and striking on one buttock. He was carried to his ward, was found to have sustained no damage save a severe bruise at the seat of injury, and in a state of perfect sanity. He was discharged cured in a few days, when able to walk. At about the same time Dr. Lyman Stone, then house-physician of Bellevue Hospital, published a similar case. The patient was wildly delirious from typhus fever, and the case concluded with this quaint sentence: "He broke from the orderly, jumped out of the third-story window to the area below, and had a rapid recovery." A case somewhat similar was related to me a few days ago, by an intelligent lady patient. A friend of hers, sojourning at Litchfield, Connecticut, during the past spring and summer, accidentally fractured her forearm. She was of a nervous temperament, and the shock was very considerable. The case did well, but the point is this: For forty years regularly she had had a recurrence of "hay-asthma" at a particular date; but this summer has passed with no symptom of it. The case is particularly interesting in view of Dr. Beard's recent researches into the *nervous origin* of this disease, and the means suggested for its cure, of the efficacy of which he is very sanguine. See his paper recently read before the "Public Health Association." Now, I do not recommend or propose to employ such radical means of cure; but, in connection with the pathological questions involved in this essay, and the effects of the neurotics already alluded to, and those to be considered, they are suggestive.

In connection with the preceding reflections and hints—for I cannot call them arguments—obscure and uncertain though they may be at present, let us briefly review the physiological effects of some of the more important *remedies*, which, with the aid of a larger experience and a more extended series of experiments on living animals, may enable us to take advantage of what, it is hoped, may prove better views of pathology.

Among the more important of these presumed to act specially on the nervous system, may be included *atropia*, *ergot*, *strychnine*, *opium*, *conium*, *physostigma* or *escrime*, *iodine*, *calomel*, (in sedative doses), *quinine*, *phosphorus*, *amyl nitrite*, the *bromides*, the *anæsthetics* (by inhalation), *digitalis*, *electricity*. Many others might

with propriety be added, but these have been most thoroughly studied as yet. *Guarana*, or *Paullinia sorbilis*, ought not to go unnoticed, though we know nothing of its precise physiological action; but the prompt relief which it affords in various headaches, including *migraine*, and the safety with which it may be administered in almost any dose, renders it, like the bromides, doubly valuable.

*Electricity* is placed last, not because it is the least in value, but because it is undergoing a thorough investigation, and its status is very unsettled. Judging from the power which it is rapidly developing over a great variety of diseases under the close study and thorough experimentation of many of the ablest men in the profession, it bids fair to stand high in the list of this class of remedies, and perhaps second to none in the *Materia Medica*. As an *analgesic*, and even *hypnotic*, it may, in a great variety of cases, aspire to a rivalry with opium—the *magnum donum Dei*—in some cases being far superior to it. If time will permit, I hope to adduce numerous cases in proof of this assertion, some of them very striking, a few of them I think *unique*, many of them not involving anything novel or strange to those of you who are in the daily habit of employing this agent in its several forms largely in your practice. But, as yet, comparatively few even of those considered the best therapeutists of the profession, make any considerable or systematic use of electricity, except in a very contracted range of diseases, and are extremely skeptical as to the reports from specialists, of its wonderful influence over symptoms and diseases to which it had heretofore been considered entirely inapplicable. It is no wonder that the extraordinary assertions of Remak, Duchenne, and lately Arthius, in Europe—to say nothing of their distinguished followers in our own country—should be received with discredit, and even with derision; it has invariably been the fate of all remarkable discoveries in our science. But an honest and careful imitation of their methods, uninfluenced by blinding prejudice, will soon convince the most skeptical that enthusiasm has but little colored or warped their reports; unless, indeed, the enthusiasm engendered by the almost magical results of his first essays should warp his own judgment. *Static* electricity has fallen into such complete disuse of late, and the little book lately published by Arthius is so peculiar and enthusiastic in its style, and so sneeringly alluded

to by its reviewer in the last number of Hays' Journal, that I am induced to put on record here probably the first authenticated case of its curative effect in this country, and the first instance where it was used for *myalgia*, a disease for which we now know electricity is a specific. The operator was my colleague in the Council of the University of New York, the well-known divine, Mancius Hutton, D.D., who will, I hope, pardon me for using his name in this connection. He was experimenting fifty years ago with a cylinder machine made by himself, when his father happened to be suffering from an obstinate attack of *myalgia* of the muscles of the shoulder and back; he placed him on an insulated stool, also made for the occasion, charged him with electricity from his machine, and then drew sparks from all the affected parts. He was promptly and permanently relieved.

The physiological action of *ergot* is now pretty well established. It contracts the minute vessels, both arterial and venous. It also acts on the involuntary muscles themselves, as, for instance, the heart and uterus. It acts both on the vessels of the medulla spinalis and the brain and its membranes; this, and the fact of its being perfectly innocuous, even in very large doses, renders it, like the bromides, an extremely valuable medicine. The two together, and aided sometimes by belladonna, which has on the vessels a similar action, will probably prove one of our most reliable means of combating both acute and chronic affections of the encephalon. In spinal congestion, Prof. Hammond's very large experience has taught him that, when perseveringly used in large doses, it is a most valuable resource. Much has lately been written about its influence on fibrous tumors, especially of the uterus. I can confirm the reports of its great value in these cases. The tumors, if large, rapidly diminish, and their more serious complications, as haemorrhage, are promptly relieved. Hypodermic injection is the most efficacious means. Many seem to have been deterred, after some trials, by the occurrence of inflammation, abscess, etc., and have tried suppositories of Squibb's solid extract, which succeeds, but not so well. Dr. Murdock and I have used the injections freely in one case (alluded to in my paper on vomiting, and on the hypodermic treatment of intermittent fever); 167 injections of Squibb's fluid extract were used, in many instances repeated in the same locality, after the resulting indurations had subsided, and only once with any untoward

result. I attribute the effect on these fibroids to *starving them* out, by its constringing the vessels. This explains why it succeeds better on large tumors which are less nourished. When the body is poorly nourished, heterologous or adventitious growths are the first to be absorbed, and some of those tumors have been cured by the starvation system. Langenbeck thinks he has cured aneurisms of large arteries; indeed German surgeons have published several cases of cure, but the experiment does not seem to have been followed up, and it seems difficult to account for its effect on such large sacs or their contents. Lately it has been injected in the cellular tissue, over large varices, with a promptly curative effect; here its action is easily comprehended.

Drasche, of Vienna, has lately been credited with being the first to recommend and to use hypodermic injections of ergot for hæmoptysis and other hæmorrhages. But in October, 1869 (see report in Medical Record for November), and before the publication here of Langenbeck's trials, I used the undiluted fluid extract of ergot in a desperate case of post-partum hæmorrhage (20 to 30 minims), and the patient recovered. Its beneficial effects on certain forms of diarrhoea have already been alluded to, and its successful employment by one German and several French physicians in severe diarrhoea and dysentery, is alluded to by Wood in his recently-published treatise (*op. cit.*). It is well to combine it with *eucalyptus*, which, there is good reason to believe, acts similarly on the capillaries.

Dr. Crichton Browne, in the London Practitioner, for June, 1871, and E. Churchill Fox, of the West Riding Asylum, in West Riding Asylum Reports for 1871, give clinical evidence of the excellent effects of ergot in mania. The latter makes the following important statement: "It has sometimes occurred to me that the bromide of potassium, the value of which I would be far from depreciating, has a tendency in some cases to aggravate the attacks of epileptic mania. It seems to relieve the muscular at the expense of the mental element in the epileptic condition. The fits are reduced in number and severity, but the paroxysms of mental disturbance are intensified and prolonged. Under such circumstances ergot becomes of the highest service; its use, alternated with that of the bromide of potassium, places the two phases of the malady under equal and powerful control." I have only space to say a word about the dose of this valuable drug.

If it is used timidly or sparingly, or with a dread of the horrible consequences of *ergotism*, which has been too long the traditional raw-head and bloody-bones of routine practitioners and authors, it would be better to try some other drug. Less than *one drachm* of a good fluid extract (ergotine, so called, has no existence), three times a day, for an adult, ought to be the minimum dose, though we may *commence* with half a drachm merely out of respect for the stomach. In some cases of a very dangerous or obstinate character, the dose may be larger; and if for acute disease, or if not to be continued very long, very much larger. "In one of Wright's experiments," says Wood, "an amount equal to two drachms for every pound weight of the dog, failed to kill." Horatio Wood says, "Although I have given ergot (fluid ext.) in ounce doses, I have never seen it cause any distinct symptoms." He alludes, however, to two cases, in which poisoning did occur; but the amount taken was not mentioned by the reporters. I cannot explain the statements of the numerous writers, who, for hundreds of years, have given accounts of fatal epidemics of ergotism, except by referring you to the testimony of Troussseau and Pidoux,\* who "assert that these epidemics are not dependent on any specific action of ergot, but are either epidemics of blood diseases, or simply the results of improper and insufficient food—merely the outcomes of poverty, wretchedness, and famine." I have not referred to all the diseases for which this remedy has lately been successfully tried, but have devoted to it more space than I should have done, had not my friend Dr. J. C. Peters passed it over in his valuable paper of last month, on the vegetable neurotics.

I ask your attention next to *digitalis*, both because of its great value, and because it affords another still more striking instance of the evil of traditional evidence, or rather of a blind reliance on it. Up to a quite recent period in the history of medicine it was looked upon as, *par excellence*, a depressing remedy, especially on the circulation; and I imagine that but comparatively few physicians now, taking the whole country, have any definite idea of the value of this remedy as a *heart tonic*, and of the great range of its applicability in disease. The error has arisen, probably, as errors concerning the action of remedies have too often arisen, from noting the effects of *toxic doses* on animals. In *such doses* "it lowers

\* Horatio Wood's Mat. Med. and Therapeutics, p. 469.

reflex activity, and induces lassitude, prostration, muscular tremblings, and sometimes convulsions." Its powerfully *tonic action* on the heart has been demonstrated by all the numerous experimenters on its action on animals. It produces such an energetic action on the heart, if pushed too far, "that the ventricles become white, as the last drop of blood is squeezed out of them." Finally, if pushed to its poisonous effect, the heart is arrested in systole (Wood). In the case of a lady at West Point, a patient of Dr. Peaslee's, who had had a peculiar affection of the heart for some years, the pulsations being above a hundred, and very feeble, becoming extremely rapid, feeble, and irregular on walking across the floor, and who had been told, as she said, that there was no remedy for it, I prescribed tincture of digitalis in only ten-minim doses three times a day; within forty-eight hours, if my memory serves me, the pulsations of the heart and the throbbing of the vessels of the head and neck became alarming, so that in my absence she sent for Prof. Dunster, then the assistant surgeon of the post. He stopped the remedy, finding her pulse regular, full, and strong, and not abnormal in frequency. This was the end of her heart-trouble, for, I think, a year, when a similar attack, but much milder, was relieved by her physician at home, to whom she related the effect of the remedy in her previous attack. This is a typical, but not an uncommon case. It is not only in such marked cardiac cases that digitalis exhibits its great value as a neurotic. In all cases of debility requiring vegetable or mineral tonics, and when the heart's action is disproportionately weak, as is frequently the case, I employ it as an auxiliary, and with prompt and decided effect; also in combination with these remedies, or with astringents in passive haemorrhages, especially in some obstinate menorrhagias. It has been shown, by direct experiments on frogs and rabbits, that it rigorously contracts the capillaries like ergot and belladonna (Boldt and Ackermann, quoted by H. Wood). Where an indication for the remedy seems to exist from the weak or irregular action of the heart, and a concentric hypertrophy of the latter is made out or suspected, the latter being usually considered a strong contraindication, it is well to give it, but to do so cautiously; and as the remedy is pretty uniform, and in my experience, and contrary to tradition, also non-cumulative in its action, it is perfectly safe; and I have seen it very efficacious in those very cases. In sudden cases of

prostration from disease, or poisoning by such agents as paralyze the heart, as aconite or veratrum, the remedy may be given by hypodermic injection. In Bellevue Hospital I am told it has been used thus with prompt effect in sudden and dangerous suppression of urine, though its action on the kidneys is probably secondary to that on the heart and arteries, and not as a *diuretic*. It is well worth trying, commencing with ten minims. In severe cases of cardiac irregularity and frequent pulse, when the patient is not confined to the recumbent posture by necessity, it is better to enjoin it while the remedy is being tested, as it not only produces its effect by *direct action* on the muscular fibre, increasing its power, but by an inhibitory action on its nerves, allaying irritability and irregularity. It passes my comprehension how so advanced a man as Prof. See, of La Charite, can declare that digitalis is a cardiac depressor or paralyzer, and that Liebermeister and Headland should substantially sustain this opinion. This drug will be again alluded to under the head of paralysis of the heart.

Few, it is presumed, will be willing to admit calomel into the list of neurotics, or of remedies acting directly on the nervous system, and I can only refer you to actual clinical experience in my own practice and in that of others which seems to me to place it beyond doubt. I have not time to give recent cases, but I refer to numbers already published by me in the New York Journal of Medicine, March, 1856, in an article on Dysentery, and in the same journal for March, 1870, in a paper read before the Dutchess County Medical Society on the "Sedative Action of Calomel." As this peculiar and important action of calomel is scarcely at all comprehended at the present day, not even alluded to by Waring, Phillips, and Sidney Ringer, in their late editions, though well known to James Johnson, Annesley, and many other distinguished topical writers of their period, as well as to Hamilton of Edinburgh; as it is entirely discredited by Headland, and not even referred to by H. Wood in his able and very valuable, though, in some respects, rather incomplete treatise so often referred to in this paper, I feel constrained to devote more space to its notice than I should otherwise have done.\* "Probably no single dose," says Wood, "is capable, in the average man, of acting as a virulent

\* Sir Thomas Watson says he has seen the good effect of the sedative doses, but he has apparently never used them.

poison, owing to but a limited portion of it being absorbed, the remainder being swept out of the alimentary canal by the diarrhoea produced." If Dr. Wood would experiment with this, as he has so carefully done with so many other not so valuable drugs, and uninfluenced by tradition and prejudice, he would find that it neither passes out of the bowels quietly, "like so much chalk," as Headland says, nor is swept out by diarrhoea; for, when a *genuine sedative dose* is given to a sick person, for it is no test to give it to a healthy animal, as the Edinburgh Committee did, say not less than xx to xxx grains, it will, as I have shown by numerous published cases (op. cit.), sometimes produce constipation, not unfrequently a complete arrest of peristaltic action in dysentery and cholera for twelve hours; and even when it acts as a cathartic it does so not very promptly, and generally in the mildest manner; and ptyalism is almost never induced. It is true that if an overdose is given it does pass quietly out of the bowels without injury, as Headland says, but he is in error when he says that only the *ordinary cathartic dose* takes effect, say 5 or 10 grains. For if in the cases above alluded to such a dose be given, it will usually, probably always, produce irritative and aggravating effects, whereas the full dose acts in a manner precisely the reverse. There is, probably, as Wood states, no such thing as a poisonous dose of the drug, but I have never had occasion to go further than 90 grains in one night to a child with membranous croup, and I have always seen either good effects or no effect at all from such quantity. I refer to an interesting case of Hamilton's, in the person of a child of the celebrated Sidney Smith, published in his biography. The country practitioner, frightened at the doses recommended by Hamilton, abandoned the case, and the father carried out the treatment and saved his son.

That calomel has its sedative influence by direct action on the peripheral nerves, and so on the nerve-centres, and that, when more is administered than is required for this effect, the surplus is not absorbed, and does not affect the blood, is not only sufficiently proved, as far as clinical evidence can prove it, by the large number of recorded cases of my own and of many other observers in this city, but especially in the Western and South-western States, but has remarkable corroborative evidence in the similar action of a remedy taken from the *vegetable kingdom*. Although one drop of croton-oil is a dose, and two

or three, which are very rarely given, will often produce alarming diarrhoea and prostration, a drachm or more has been accidentally swallowed without serious results. "Cowan," says Wood (*op. cit.*), "has recorded the case of a child, four years old, who recovered in two days, from a teaspoonful of croton-oil taken on a full stomach." Adams, another case of recovery from a drachm taken by injection. Wood himself has only been able to discover two fatal cases from large doses. In one, the dose was two and a-half drachms, and the patient a man already worn out by a four weeks' illness from typhoid fever. In the other, recorded by Giacofini (*Stille's Therap.*), "twenty-four grains" proved fatal, not by purgation, there having been only four passages, but apparently by nervous shock, the symptoms being those of "general collapse, the patient preserving consciousness to the last." When injected into the veins, the weight of evidence from experimenters on animals is to the effect that it does *not* thus produce its characteristic effects (Hertwig and Buchheim). In certain conditions of the peripheral nerves of the intestines, as where they are poisoned by lead (*Colica Pictonum*), and obstinate constipation results, the ordinary dose of the oil has no effect, I have repeated the dose, one or two drops, every hour, until ten or fifteen drops were taken, without eliciting any response, and with no evidence of absorption into the blood. This peculiar action of lead on the intestinal nerves, renders its preparations a valuable remedy in some forms of diarrhoea, but the doses must be large enough, and they are seldom so, to produce this sedative effect. The fatal dose, in the latest work on *Mat. Med.*, is one to two ounces (H. Wood). The danger of affecting the system seriously, is in giving small doses continuously—the almost infinitesimal doses which painters, plumbers, etc., sometimes get, producing all the serious phenomena of chronic lead-poisoning. So it is with calomel; there is absolutely no danger from a teaspoonful, while a few grains, given in minute doses, may produce the most serious consequences—in the one case, the medicine acting through the *nerves*, in the other, through the blood. This peculiar immunity from large doses of drugs, while small or moderate doses produce such serious consequences, deserves more investigation than it has received. Take *arsenic* for instance, reputed one of our most active poisons: while unpleasant consequences arise from frac-

tions of a grain, and death, it is said, from two or three grains, there are instances on record where several drachms, in one case two ounces, were taken, and the patients recovered; in one case a very large quantity was taken in lumps, and sixteen hours elapsed before remedies were applied. It has been said that these large doses cause prompt emesis, and thus a large portion is rejected; and, in such cases as the last, that it was in a very insoluble form. But I have, within a few days, seen a remarkable case where none of these theories could be applied. I was invited by Dr. D. I. Bruner, of Columbia, Pa., to see the patient, and from the two I obtained a complete history.

Mr. W. B., aged 55, a healthy man, but rather addicted to the favorite German drink of that region, had been meditating suicide, as he informed me, for three weeks; when, on the 19th Sept., 1874, having warmed up his courage by some five or six glasses of lager, he obtained an ounce of arsenious acid, in powder, from the principal druggist, under a specious pretext, and took full three-fourths of it, six drachms. He had just before taken some food. Supposing that death would come soon, he laid himself down in a proper position, informed his family of what he had done, and bade them good-by. His wife summoned Dr. B. at once. The doctor found him comfortable, but endeavored to persuade him to take an emetic, but he positively refused to have anything done. The doctor remained with him an hour and a half, and then left, supposing there must be some deception; an hour after, however, he was again hurriedly called, and found the man in great agony, vomiting, purging, and complaining bitterly of the usual pains and burning sensations in stomach and bowels. He had taken the ipecac left by Dr. B. It was not until *five hours* after the ingestion of the poison that Dr. B. got the usual antidote, which he gave him in large quantity as fast as he rejected it. None of the arsenic was observed in the vomited matters; but the doctor did not see the first. He gradually recovered from the pains, and fourteen hours after the dose was taken he fell into a quiet sleep, with a natural pulse, easy respiration, normal temperature (by the thermometer), and rested four hours, and awoke free from pain or burning, and has had none since. In fact, with the exception of the first few hours, he has had not one of the many characteristic symptoms of acute arsenic poisoning, and a hy-

podermic injection of morphine would, in all probability, have promptly relieved those from which he did suffer. The nausea and vomiting continued about four days, but during that time he took and relished all the food he was allowed to have, and his appetite and digestion have been unusually good up to the present time, seven or eight weeks. I said there were no characteristic phenomena of acute poisoning. He did have marked injection of the conjunctivæ, and a slight feeling of constriction of the pharynx for a few days. On the seventh day, symptoms of chronic poisoning set in, with numbness and pricking, closely followed by weakness of the feet first, then the hands, and in the course of a week increased to the degree in which they exist now. Nov. 12th, he can close his fingers on my hand, but cannot grasp. He cannot stir foot or toes; can use the muscles of the thigh. The feet are very slightly oedematous, but only from letting them hang down most of the day. The functions of all his viscera appear to be perfect; his tongue is clean. His pulse, sitting up, is 120, and rather feeble. Recumbent, pulse 90. He can feel pricking or pinching in almost all parts of the foot, and refer it to its proper locality, but the sensation is always that of burning. Has been on the iodide of potassium. Within the past week the doctor thinks he has improved a little. Recommended increase of the dose (10 grs.) of the iodide, strychnia hypodermically, and electricity.

Bromide of potassium sometimes acts in a similar manner as regards dose; some physicians have given it in half-ounce doses, with good results. One physician knew of a case in which an ounce was taken at a dose with no unpleasant result; and a medical acquaintance, whose name I cannot now recall, had a patient, during the war, to whom an orderly gave a saturated solution, containing *two ounces*, for dispensary use, without its being known until the following morning. The effect was not greater than it sometimes is from half a drachm. A lady patient of mine took nearly half an ounce, in a state of desperation from insomnia, and showed no other bad effect than want of co-ordination of the muscles for some days. She was rather benefited otherwise. One unpleasant effect, however, of a concentrated solution, and of even the little lenticulars of Dunton, on an empty stomach, is a most violent though transient pain in the epigastrium.

The above phenomena have also been noted in the case of *quinine*. A case has recently been reported to me by Dr. Woodhull, a former surgeon of volunteers, where one of his men took an ounce of quinine, and no marked symptoms resulted. He sometimes gave half-ounce doses, and frequently doses amounting to half an ounce daily.\* H. Wood, however, refers to the case of a man and wife, the former of whom took two ounces, and the latter one ounce, at one dose. The man died, and the wife "was recovered with difficulty." Many physicians believe that, after reaching a certain dose of the drug, say fifteen to thirty grains, you cease to get any response, and the larger doses are simply waste of a valuable drug. I am myself inclined to take this view, as in the case of calomel, half a drachm of which, at one dose, is as far, probably, as it is ever necessary to go.

(To be continued.)

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## Editors' Book Table.

[NOTE.—All works reviewed in the pages of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN, COOKE & CO., whose catalogue of Medical Books will be sent to any address upon request.]

CYCLOPÆDIA OF PRACTICAL MEDICINE. Edited by *Dr. H. Von Ziemssen*, Professor of Clinical Medicine in Munich, Bavaria.

Vol. II. Acute Infectious Diseases. By Prof. Thomas, of Leipzig, Dr. Curschman, of Berlin, Dr. Zuelzer, of Berlin, Prof. Hertz, of Amsterdam, and Prof. Ziemssen, of Munich.

Translated by James C. White, M.D., and Edward Wiglesworth, Jr., M.D., of Boston, Edward W. Schauffler, M.D., of Kansas City, and A. Brayton Ball, M.D., J. Haven Emerson, M.D., George H. Fox, M.D., Edward Frankel, M.D., and John C. Jay, Jr., M.D., of New York. Albert H. Buck, M.D., New York, Editor of American Edition. New York : William Wood & Co. 1875.

The flattering commendation so generally bestowed by the American medical press, and the hearty welcome accorded by the profession to the first volume of Ziem-

\* New York Med. Journal, Art. "On Hypodermic Treatment of Fever," by the Author.

ssen's Cyclopædia, warranted the expectation that the publishers would be encouraged to issue the succeeding—the second—volume at an early day. It is gratifying to perceive that these anticipations have been so speedily realized, and the second installment of "Acute Infectious Diseases" is at hand.

The discussion of varicella, measles, *rubeola* and scarlet fever, is from the pen of Prof. Thomas, of Leipzig, who seems to have acquired, at an early period of life, an extensive reputation on the other, although hitherto unknown upon this, side of the ocean. The treatise upon measles is voluminous, and the literature of the subject, as far as it is comprised in the works of German authors, exhausted. A few Dutch and French authorities appear to have been referred to, but only a very few English writers, and these not of the more recent, seem to have been consulted, while, as in the first volume, American authorities are entirely ignored, with the exception of Drake, who is quoted once, and Salisbury. Regarding the etiology of measles, it is satisfactory to perceive that the author has not been carried away by the spore-theory of contagion, which appears to have captivated so many of his countrymen. Regarding its diagnosis in colored races, he asserts, upon the authority of Praver, that the eruption upon negroes "is distinguished by little vesicles." These were in all probability examples of intercurrent herpes, as the reviewer has had the opportunity to examine a large number—approximating one hundred—cases of this disease in negroes, in whom the eruption was invariably black; that is, much blacker than the prevailing tint of the negro's skin. In reference to the "measles-like eruption of dengue," there can be no liability to confusion to one at all familiar with the two diseases, the eruption of dengue resembling in no respects that of measles, as we have had the opportunity to verify on many occasions. No reference is made to the anæsthesia, especially paraplegic and gustatory, so characteristic of dengue. Concerning the treatment of measles, it

will strike an American practitioner as a novelty that for the "suppression of immoderate fever in the prodromal, and especially in the eruptive stage," "at present, cool baths, packings and extensive cold compresses are the usual means employed."

Is this the beginning of a new era of hydropathy? Or is it a new phase of the temperance movement?

The author rejects the term rubeola as a synonym of measles, claiming for it a specific identity with Rotheln, German measles, roseola or rougeole, and asserts, and we believe correctly, that this is the true nature of many of the so-called "second attacks" of measles.

The treatise upon scarlatina is from the pen of the same author, and consists of a very brief historical sketch, followed by an interesting paper upon the etiology of the disease, in which, in referring to the experiments of Hallier and Riess, the author concludes that "these experiments therefore render it highly probable that the contagious principle, having entered the blood, is disseminated by it throughout the body; and further, that it stands in some very intimate relation with these finest spores or micrococcus." Concerning the influence of social position, he asserts "that the mortality increases with poverty and decreases with affluence, though its dependence on the latter is not so apparent as in the case of measles;"—conclusions which experience in this country will scarcely justify. "Conditions of soil," he thinks, may also occasionally exert an influence, as likewise does "a residence in certain localities." The influence of age as a predisposing cause of the disease, is established by copious statistical tables. He thinks, too, that "those who have been operated upon, and the wounded," possess "a greater susceptibility to the disease." Influence of race he considers as undecided. He admits the possibility of second attacks of the disease, "besides a few reports of a third and fourth infection in the same individual."

The chapter on pathology is full. The affections of the lymphatic glands and the joints, and the diseases of

the kidney, together with the characteristics of the urine, receive their due share of attention.

The irregular forms of scarlatina, and its complications, are discussed at large, and are followed by a condensed epitome of its sequelæ.

As regards the treatment of scarlet fever, we most heartily endorse all that the author has to say upon the subject of prophylaxis, which may be summarized thus—*isolation, ventilation, disinfection, and thorough cleanliness*. The “symptomatic,” he claims, is the only rational and advisable treatment for scarlet fever; and while his commendation of hydro-therapeusis will receive the cordial endorsement of many, his frequent citations of Priessnitz suggest to the American reader the query, “Can any good come out of Nazareth?”

Dr. Curschman's treatise on small-pox consists of a summary of his own conclusions, deduced from personal observation of the disease, in the recent epidemic in Mayence, in 1870-71, and his investigations into the literature of this malady, from its earliest history down to the present time. Discrediting earlier accounts, the author considers as the earliest advent of the disease into Europe, the epidemic of 581, described by Gregory, of Tours, and the “first scientific description of it, that of Constantine Africanus,” of Salerno. Noting briefly its ravages in Europe, he refers to its spread thence to America, and its frightful ravages in Mexico, in 1527, and considers that the virulence of the disease was unabated by any remedial measures until the introduction of *vaccinia* by Jenner. The author regards, and justly, perhaps, the inoculation of the small-pox poison as of questionable benefit, inasmuch as, while it undoubtedly modified the intensity of the morbid phenomena in the individual subject, it at the same time multiplied morbid foci, from which it was capable of infinite radiation and reproduction.

The author offers no conjectures upon the subject of the etiology of small-pox, but furnishes some statistics

of the epidemic at Mayence, showing the relative susceptibility at different ages, together with a number of examples of the occurrence of the disease in extremely early periods of intra-uterine life, as early even as in the fourth and fifth months.

Regarding what might be termed its collateral morbid relations, he says: "It can be asserted with certainty, that for an individual suffering from scarlet fever, measles or typhoid fever, there is, during the entire duration of the affection, a very slight liability to an attack of variola only;" which, after all, seems to be asserting very little "with certainty," and, as far as regards measles, at least, the assertion will not be received with absolute certainty by some observers.

As to the liability of second infections of small-pox, the author is skeptical, although citing the example of Louis XIV, who died from a second attack of the disease, just fifty years after the occurrence of the first. He claims the purely specific nature of the virus, its residence in the pustule—although admitting the possibility of infection by inoculation of blood—its transmissibility by means of "perspiration" and "gaseous particles," and "the atmosphere about the patient," which, "imparting the contagion" to surrounding objects, "clings to them for a variable length of time." He asserts that "small-pox virus impregnating gaseous media, and excluded from the air, is possessed of very great permanence;" that "the contagion" is "readily destroyed" by exposure "to atmospheric air," but that high temperatures, the vapor's of chlorine, iodine, bromine, sulphur and alcohol, act deleteriously upon the contagion only after very intense and long-continued influence.

The terms infection and contagion are used very loosely; sometimes apparently as synonyms, again distinctively, and sometimes objectively, to indicate a matines morbi, and again subjectively, designating the act of transmission of the same.

It is impossible to acquire any definite impressions upon this subject of epidemiology until writers shall have determined the correct etymology of the technical language in which their propositions are couched. A translator would seem to be warranted in so far violating literal fidelity as to correct such ambiguities.

In the short paragraph relating especially to pathology, the author's definition of the relations of variola and varioloid is by no means as clear as is desirable. "No one any longer considers varioloid as an independent disease, as was formerly zealously maintained. Every one knows that we see nothing further in this affection than one of the many forms in which small-pox is manifested, according to circumstances." In view of the universal belief in the essential relations of varioloid to vaccinia, it would have been better had this proposition been more restricted in its comprehension.

The period of incubation of small-pox, the author fixes "most frequently at from ten to thirteen days, less frequently fourteen days, or eight to ten days, and in one case only five days;" the "initial stage" at "three days," "as a rule;" the temperature "on the first day" "often"  $103^{\circ}$  to  $104^{\circ}$ , "on the evening of the second or third day, frequently"  $105^{\circ}$  to  $105\frac{1}{2}^{\circ}$ , and in some cases "even above  $107^{\circ}$ ." The observations of temperature were made "in the axilla," which, by the way, will be found very frequently to furnish a higher range of temperature than the mouth.

The symptomatology of the disease is given very fully and satisfactorily; but we must enter a demurrer to the proposition of the author, italicized upon page 373: "It is generally conceded that varioloid is nothing more than a form of small-pox, with a milder course and a shorter duration." Whatever may be the fact in Germany, no such general concession has been made in America, and the assertion will, we think, strike most of our readers with surprise.

From this he proceeds, quoting Hebra, to describe

several of these various forms of variola or varioloid, and then briefly to note the complications of the disease, after which he gives a well written sketch of its morbid anatomy.

The difficulty of early diagnosis, and the liability to confound the disease with syphilitic eruptions and acne pustulosa, are fully recognized, although no reference is made to a possible source of doubt which might occur in the eruption sometimes observed to follow the use of balsam copaiba, and which has been actually diagnosed as that of variola. "One pathognomonic symptom" is indicated, although "present only in the smaller number of patients. It consists in the haemorrhagic initial exanthema, situated principally in the triangle of the thigh."

The mortality from small-pox is said to have diminished, since the last century, from 7 to 12 to 0.7 to 1 per cent. of the total.

As a prophylactic, the author's confidence in vaccination is thorough; but he has no confidence in its protective capacity when performed during the stage of incubation. Abundant evidence exists on this side of the ocean to demonstrate that the protective power of vaccination is efficient even during this period of incubation. The possibility of securing this protecting influence is suggested by the difference in the length of the period of incubation of the two diseases, that of vaccinia being two, while that of variola is generally from "ten to thirteen days." This suggestion has been practically and successfully acted upon so often as to leave no room for doubt upon the subject. The author's ideas on the subject of treatment are rational and judicious. He does not try to "cure the disease," but to keep the patient alive, and as comfortable as possible under the circumstances, and has no faith in efforts at abortion either of the disease or the eruption.

The discovery of vaccination is, justly, assigned to Jenner, and his merit is by no means diminished by the pre-existence of the knowledge that persons who

had contracted the vaccine disease enjoyed an immunity against small-pox. This fact constituted the essential premise of Jenner's induction, without which it could not have been made.

The origin of vaccinia is attributed to a similar disease occurring in horses, and the existence of manifestations of the same character in other animals susceptible of intercommunication, is asserted.

Dr. Curschman dissents from the belief in the deterioration of humanized vaccine, and perceives no advantages in the use of non-humanized virus. He is very justly skeptical concerning the transmission of constitutional diseases, more especially syphilis, by vaccination, and with equal justice attributes the very rare instances in which such results have occurred, to carelessness in the selection of the subject and of the lymph, and in the performance of the operation. He is a warm advocate of compulsory vaccination by State interference—a proposal which presents to Americans two phases so strikingly contrasted as to necessitate great deliberation in its adoption or rejection. The subject of re-vaccination is entirely ignored, except incidentally.

Taken altogether, Dr. Curschman's article is an excellent compendium of the state of knowledge upon the subject of which it treats, and will constitute a very useful work for the general practitioner.

H.

ESSAYS ON CONSERVATIVE MEDICINE AND KINDRED TOPICS. By *Austin Flint, M.D.*, Professor of the Principles and Practice of Medicine and of Clinical Medicine, in Bellevue Hospital Medical College, New York. Philadelphia : Henry C. Lea. 1874.

Prof. Flint's name has been so thoroughly identified with conservatism, that it appears with peculiar propriety upon the title page of a volume devoted to its exposition. And the presentation of the thoughts and opinions of so accomplished a physician and so ripe a scholar, in this form, is a contribution to the literature of the profession which may exert upon it ultimately an influence as bene-

ficial as have some even of his more practical works. Every young man should read these "Essays," for he cannot fail to derive both pleasure and profit; and men of longer professional life and larger experience will likewise find perhaps some of their best thoughts formulated into language their best judgment confirmed by the conclusions of the author. The little book will become one of the classics of professional literature.

H.

ON FUNCTIONAL DERANGEMENTS OF THE LIVER, Being the Croonian Lectures, Delivered at the Royal College of Physicians, in March, 1874. By *Charles Murchison, M.D., LL.D., F.R.S.*, Fellow of the Royal College of Physicians, Physician and Lecturer on the Principles and Practice of Medicine, St. Thomas Hospital; Vice-President and Consulting Physician, London Fever Hospital; formerly Physician and Lecturer on Medicine, Middlesex Hospital; and on the Medical Staff of H. M.'s Bengal Army. New York: William Wood & Co. 1875.

The notice of Dr. Croon, the founder of lectures of which this little book comprises one course, constitutes a graceful introduction to a series of admirable lectures, for the preparation of which the author's experience seems to have especially qualified him. The course consists of three lectures, of which the first is occupied with the physiology of the organ, which are formulated under three heads.

1st. The formation of glycogen, which contributes to the formation of animal heat and to the nutrition of the blood and tissues; and the development of white blood-corpuscles.

2nd. The destructive metamorphosis of albuminoid matter, and the formation of urea and other nitrogenous products which are subsequently eliminated by the kidneys, these chemical changes also contributing to the development of animal heat.

3rd. The secretion of bile, the greater part of which is reabsorbed, assisting in the assimilation of fat and peptones, and probably in those chemical changes which go on in the liver and portal circulation; while part is excre-

mentitious, and in passing along the bowel stimulates peristalsis and arrests decomposition.

It will be perceived that the author very justly rejects Liebig's theory of the production of animal heat exclusively to the destructive metamorphosis of carbonaceous ingesta, in the adoption of which that great chemist seems to have so strangely overlooked one of the most obvious results of the liberation of force by the disturbance of chemical affinities.

In the second portion of this chapter, devoted to "functional derangements of the liver," the relations between the hepatic and renal functions, as illustrated in the development of diabetes, are clearly defined. In estimating the importance of cholesterine as a pathological factor, the author differs from Dr. Austin Flint, Jr., arguing that "in cases of permanent closure of the bile-duct, cholesterine is not discharged from the liver into the bowel; it does not accumulate in the biliary passages; nor, if it be present in the blood, does it necessarily give rise to cerebral symptoms." Hence, "if the non-excretion of all the elements of the bile does not give rise to cerebral symptoms, it is difficult to understand how these symptoms can result from the retention of cholesterine alone." On page 120, the author endeavors to account for the "cerebral symptoms" symptomatic of certain morbid conditions of the liver, by the presence of "leucin and tyrosin," "deleterious products of disintegrating albumen," thereby apparently placing himself in the same dilemma which he assumes to be occupied by Flint. The author proposes a new system of classification of "Functional Derangements of the Liver," i.e.: 1, Abnormal Nutrition; 2, Abnormal Elimination; 3, Abnormal Disintegration; 4, Derangements of the Organs of Digestion; 5, Derangements of the Nervous System; 6, Derangements of the Organs of Circulation; 7, Derangements of the Organs of Respiration; 8, Derangements of the Urinary Organs; 9, Abnormal Conditions of the Skin. Which appears to be unnecessarily

extensive, the first three classes being evidently susceptible of reduction to one, from their essential correlation.

In considering the therapeutic action of mercury, the author avoids assuming a partisan attitude in reference to the cholagogue or acholagogue effect of the drug, assuming a position which, contradicting the experiments of neither side, may harmonize with both—*i.e.*, that mercury acts by unloading the portal blood of the waste matters contained therein, and also by facilitating the disintegration of albumen.

The book deserves even a more extended notice than has been attempted here, did time and space serve for the purpose. It certainly deserves to be read by all, and if read carefully, cannot fail to be highly appreciated. Not the least of its merits is the style of its publication, which is excellent, the clear type and fine paper being very attractive to the eye of a lover of good books. H.

TRANSACTIONS OF THE TWENTY-FOURTH ANNIVERSARY MEETING  
OF THE ILLINOIS STATE MEDICAL SOCIETY, Held in the City  
of Chicago, May 19th, 20th, 21st, 1874.

The transactions comprise various addresses, appropriate to such occasions, reports upon surgery, on galvanotherapy, on muriatic acid in the treatment of continued fever, on malarial diseases and their treatment, on continued immersion in compound fractures, in lacerated and in pointed wounds, contributions to the report on practical medicine, report on stricture of the urethra, on necrology, on otology, on orbital tumors, and on idiocy. The report upon surgery commends highly bloodless surgery, as accomplished by the process of Esmarch, which it regards as the inauguration of a new era in practical surgery, equal in importance to those which dated from the first ligation of an artery by Ambroise Pare, and the first joint-resection. The report is equally commendatory of pneumatic aspiration, and gives the preference for the performance of this operation to the aspirator of Mathieu, Paris. The report is

especially enthusiastic on the subject of the Bavarian or bi-valve splint of plaster of Paris, for the formation of which minute directions are given. Concerning anaesthetics, after a review of the Boston case of Mrs. Crie, and quotations from the experts examined on that occasion, the reporter admits the "growing conviction that the use of chloroform ought to be abandoned for the purposes of anaesthesia," and that he is himself "compelled somewhat sorrowfully to share in this conviction." He attributes the impunity with which chloroform was administered by army surgeons, during the war, to the fact of the customary previous administration of whisky. It seems strange that observers of the effects of anaesthetics should appear to have directed their attention exclusively to the condition of the heart, overlooking therein the modifications of innervation, proximately induced by the influence of these agents, and of which the changes observed in the condition of the heart are but secondary and remote consequences. The first effects of chloroform are undoubtedly manifested upon the nervous system, and assume the form of increased arterial tension, the direct result of vaso-motor irritation. An extension of this irritation, and resulting arterial tension, is soon apparent in the cerebral circulatory system, as indicated by the dilatation of the pupil and the extreme pallor of the now almost pulseless patient, whose heart still beating awaits the extension of this irritation to the pneumogastric nerve, to still its throbs in death.

The successful application of the postural treatment to the restoration of patients syncopated by chloroform, demonstrates clearly the truth of the above proposition, the rationale of the treatment being simply the introduction by the operator of another mode of force, gravity, (Mayer's "falling force") to the restoration of the equilibrium between arterial and cardiac action, disturbed by the influence of the chloroform acting as a vaso-motor stimulant. The heart, overwhelmed by the combined influence of the *vis a fronte*, arterial spasm, and of the

vagus nerve, can no longer propel a sufficient amount of blood to the brain to maintain therein the degree of stimulation necessary to continue the circulatory process, and bring back to itself blood enough to maintain its own accustomed stimulus. From such a condition, escape is impossible by means of any auto-genetic agency. If the patient is now inverted, and maintained in that position, a new factor is introduced from without, gravity, under the influence of which the arterial tension is overcome by haemostatic pressure, the blood descends in increased quantity into the vessels of the inverted brain, an increased supply of nerve force is developed, the pupils contract, the inhibitory influence of the vagus is overcome, more blood is admitted to the heart, this organ is awakened to renewed life, and with its restored activity the pulse beats anew, color and warmth return, and the normal equilibrium of function is restored.

The reports generally deserve extended notice, did time and space permit—none of them, perhaps, more so than that on Ophthalmology, by Prof. E. L. Holmes, and that upon Idiocy, by C. T. Wilbur. The reading of the proof has not been as carefully performed as it might have been, as is rendered apparent by numerous orthographical errors, which could scarcely be attributed to the authors of the papers. Taken altogether, the volume is exceedingly creditable to the members of the State Medical Society.

H.

THE COMPLETE HAND-BOOK OF OBSTETRIC SURGERY. By Charles Clay, M.D., Late Senior Surgeon and Lecturer on Midwifery, St. Mary's Hospital, Manchester, England. Philadelphia : Lindsay & Blakiston.

The design of the author in this little book is implied in the title. While we have read the book with some interest, frankly, we cannot see the necessity of handbooks in any department of medicine ; and least of all do they seem called for in obstetric surgery. Is it intended as the first book for a student ? What student would be satisfied with the incomplete description of ob-

stetric operations and diseases which a small hand-book must necessarily contain ! If unsuitable as a first book, it is not necessary as a review, which can be made in a completer treatise. Is it intended for the busy practitioner ? What surgeon would perform ovariotomy with no other book than this to recall to his mind the many points in the operation ! If it is convenient for the practitioner to consult this book in an emergency, it will be equally convenient for him to consult a completer monograph. Still, any one who has plenty of time and means to devote to books of all kinds, may also read this with some profit.

The arrangement of the subjects, which the book contains, in alphabetical order, may present some advantages, yet it seems like going from extreme to extreme to speak of the treatment of piles and hare-lip upon the same page.

The author says of chloroform as an anaesthetic agent, "we have no other that offers the same immunity from suffering." We believe this, the extension of an error; for every surgeon and obstetrician in America knows that sulphuric ether gives an immunity from pain quite as complete, while its use is infinitely less hazardous.

Further, "it is a singular and significant fact, that no death has been recorded from its use in midwifery ;" this he attributes to, *first*, "That the patient is not (or at least ought not to be) completely thrown over into a state of perfect anaesthesia (or snoring), but kept just within the limit; not quite unconscious, yet not sensible to pain." This leads to the inference that an agent acknowledged to be extremely dangerous in surgery may be used with safety in obstetrics, attention being drawn only to the *degree* of anaesthesia. This is wrong. It may be that no death has been *recorded* from the obstetric use of chloroform, but at least two instances have been narrated to us of women who have died in labor, from the effects of chloroform, in the hands of

gentlemen experienced in its use. It is a fact, unfortunately, that death from chloroform occurs oftenest before the state of insensibility is reached, and when the victim is in just that state which the author urges is safe. The conclusion is, that chloroform is endowed with a property, peculiar to itself, which will surely destroy life under some circumstances which we are not able to recognize; further, in some instances, the inhalation of a few drops *only* is sufficient to kill. S.

## PAMPHLETS RECEIVED.

THIRTEENTH BIENNIAL REPORT of the Illinois Institution for the Education of the Blind, for 1873, 1874, 1875.

ANNUAL REPORT of the Supervising Surgeon of the Marine Hospital Service of the United States for the Fiscal Year 1874. *Jno. M. Woodworth, M.D.* Washington. 1874.

## JOURNALS RECEIVED.

- The American Medical Weekly—Vol. ii, Nos. 17, 18.
- The Archives of Dermatology—Vol. —, No. 3.
- The American Practitioner—Vol. xl, No. 65.
- The Canada Medical and Surgical Journal—Vol. iii, No. 10.
- The Cincinnati Lancet and Observer—Vol. xviii, No. 5.
- The Chicago Journal of Nervous and Mental Disease—Vol. ii, No. 2.
- The Clinic—Vol. viii, Nos. 17, 18, 19.
- The Detroit Review of Medicine and Pharmacy—Vol. x, No. 5.
- The Dental Cosmos—Vol. xvii, No. 5.
- The Eclectic Medical Journal—Vol. xxxv, No. 5.
- The Indiana Journal of Medicine—Vol. vi, No. 1.
- The Journal of Materia Medica—Vol. xiv, No. 5.
- Kin Le I Lelzin. Yokohama, Japan.
- The Laboratory, Boston—Vol. i, No. 10.
- The London Lancet, April, 1875.
- The Medical Times (Philad.)—Vol. v, Nos. 183, 184.
- The Medical and Surgical Reporter—Vol. xxxii, Nos. 17, 18, 19.
- The Medical Record—Vol. x, No. 17.
- The Medical Press and Circular, London—No. 1838.
- The Monthly Abstract of Medical Science—Vol. ii, No. 5.
- The Medical News and Library—No. 389.
- The Nashville Journal of Medicine and Surgery—Vol. xxxvi, No. 5.
- The New York Medical Journal—Vol. xxi, No. 5.
- The Ohio Medical and Surgical Reporter—Vol. ix, No. 3.
- The Pharmacal Gazette—Vol. iii, Nos. 65, 66, 68.
- The Practitioner, London—No. lxxii.

- The Peninsular Journal of Medicine—Vol. ii, Nos. 4, 5.  
The Progres Medical, Paris, 3e Annee—Nos. 11, 12, 13, 14, 15.  
The Pharmacist, Chicago—Vol. viii, No. 5.  
The Psychological and Medico-Legal Journal—Vol. 2, No. 4.  
The Southern Medical Record—Vol. v, Nos. 2, 3.  
The St. Louis Clinical Record—Vol. ii, No. 2.  
The St. Louis Medical and Surgical Journal—Vol. xii, No. 5.  
The Virginia Medical Monthly—Vol. ii, No. 2.

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COMPENDIUM DER NEUESTEN MEDIZINISCHEN WISSENSCHAFTEN.  
By Dr. B. Kraus. Pages, 832. Vienna: Sporitz Perles.

Having been requested, by the author, to write a short criticism on the above work, I comply hereby with his wish rather reluctantly. The author is chief editor of the "Allgemeine Wiener Medizinische Zeitung," a medical weekly which stands deservedly high, for the really valuable articles it contains, mostly written by men of eminence, as for instance, Billroth, Pitha, etc. The Compendium comprises the auxiliary sciences to the study of medical diagnosis, viz.: Thermometry, Sphygmography, Percussion and Auscultation, Microscopy, Uroscopy, and the special branches, as Laryngoscopy, Anomalies of Speech, Electro-Therapeutics, Hygiene, and Toxicology.

The articles on the different topics are written in a concise style, though sufficiently exhaustive for practical purposes. They are mostly compiled by the author himself. At the end of each article, he gives a short bibliography used by him.

As I consider no medical work on any subject complete which does not refer to standard American authorities, the shortcomings of the Compendium are apparent. Austin Flint, Da Costa, Meigs, Pepper, Jacobi, and a good many others who have contributed to some of the above medical branches, are not mentioned. If a future edition should become necessary, the author will do well to correct this deficiency.

Anomalies of Speech, written by the well-known Dr. Coen, an authority in that especial branch of medical science, is treated in an excellent manner, as might be expected.

The article on Electro-Therapeutics comes from the pen of Staff-Surgeon Sewandowsky, treats the subject fairly, and quotes our countrymen, Beard and Rockwell, quite often. Toxicology and Hygiene emanates from the pen on the author's brother, Dr. Leopold Kraus; and as no

one can expect in sixty pages but a very short synopsis on those topics, the author has done justice to the subjects under consideration, in a very creditable manner.

The work, taken as a whole, reflects credit on its author, and deserves to be read by every physician who wants information on those medical subjects, and I have no doubt that a translation, performed by competent men, would meet with a favorable reception in this country.

CARL PROEGLER, M.D.

Addison, Ill., April 20, 1875.

[From the Jacksonville Daily Journal, April 10th.]

#### THE FEEBLE-MINDED.

This very worthy institution has been deservedly popular with the Twenty-Ninth General Assembly. Its economical administration has been so marked that the appropriations asked for ordinary expenses, by its Board of Trustees, were recommended in full by both the Governor and State Board of Public Charities, and was not reduced by any committee of the Legislature; and the bill passed the house on Wednesday, by 120 ayes and no nays.

This was the only appropriation bill which passed the House this session with no dissenting voices.

The bill appropriating \$175,000 for a new building for this Institution, also \$10,000 for land, has also passed both Houses, and been approved by the Governor. On its final passage in the House, it received 90 ayes, several of its friends being absent. It is to be hoped that a building may speedily be erected, in order that the unsafe tinder-boxes now occupied may be vacated, and the pupils sheltered in safe and convenient buildings at an early day.

#### ELOQUENT SPEECH.

During the discussion on the bill to appropriate money to erect buildings for the Feeble-Minded, the Hon. E. Callahan, of Crawford county, made the following eloquent speech :

MR. SPEAKER: The gentleman from Whiteside has spoken strongly against the passage of this bill, and made his appeal to this reform legislature to rally at this point to stop the flow of money which we have been voting out of the State Treasury. Why this rally

in favor of economy should be made when the feeble-minded children of the State, without reason enough to guide and care for themselves, are pressing their plea for charity, I cannot tell. I am prepared to respond to any proper appeal for economy in the expenditure of public money. I am as careful as any member on this floor about voting for appropriations of a questionable character. I would throw around the treasury all proper safeguards. I believe in taking care of money. But, sir, in civilized countries there are higher duties and more sacred obligations than hoarding or saving money. One of these duties is to care for the unfortunate who, through physical or mental disability, are unable to care for themselves. History tells us that in the distant past there were nations who relieved themselves from the support of these unfortunates by destroying their lives. Sometimes they were directly and openly killed; sometimes left in exposed positions to perish by the vicissitudes of the weather, by hunger and thirst, or to be destroyed by wild beasts. Civilized nations reject the theory of these barbarians—deny the right to destroy life, and accept the duty of care and support. It seems to me that gentlemen who vote against this bill are proposing to go back to the barbarian theory, and leave these poor children, in whose darkened minds the brightest flashes of reason are but as the twilight, unguided, unprotected, uncared for, to perish after suffering all the refinements of cruelty which are born of neglect. I was but recently a visitor at this institution. I never saw anything that so strongly moved my pity. I was astonished at its success in the education of these poor children, in whose minds reason is but a glimmering spark, and not a guiding star. Dr. Wilbur and his assistants have succeeded beyond expectation in their efforts to strengthen and direct their minds. They may never become valuable members of society, but if they only learn to care for themselves, the benefit repays the outlay. I will not attempt argument—though arguments are numerous. Every tongue and voice of humanity pleads for them, and I accept the plea and shall vote for the appropriation. I will say further that I fully concur with the gentleman from Bureau (Mr. Herron) that the building in which these children are kept is a disgrace to the State. It is an old wooden building, as combustible as a tinder-box. If it should take fire, the escape of the inmates would be next to impossible. They should not be kept in this

peril of life a single hour longer than is absolutely necessary to provide other and safer quarters for them. The State cannot longer neglect to make this provision without subjecting its good name to reproach. Let us make this application and found this public charity, and practice our economic policy in measures where the unfortunate and the helpless are not so deeply concerned.

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#### A DESERVED COMPLIMENT.

(From the "Spectator.")

"The admirable work of Dr. J. Adams Allen, called 'Medical Examinations for Life Insurance,' and published by the Spectator Company, has now been five years before the insurance public in America; and the rapid sale of many successive editions has shown that its merits are highly appreciated here. But as it is especially adapted to American methods of doing business, and to the common American forms of application for a life policy, it was not designed for a foreign market, and probably its author never anticipated for it a circulation in Europe.

"But a book now comes to us from Berlin, entitled 'Der Gesellschaftsarzt; Handbuch für Lebensversicherer; Herausgeber, Dr. A. F. Elsner,' which is highly recommended as the best manual for medical examinations accessible to German physicians. On a careful examination of this work, we find thirty-seven pages occupied with a very good glossary of medical terms; eighteen more devoted to an index; and the remainder filled with an almost literal translation of Dr. Allen's work, embodying the whole of it, except that the appendix is omitted and the preface condensed.

"Dr. Elsner is the editor-in-chief of the Berlin 'Versicherungs-Zeitung,' and is a gentleman of such high repute and responsibility in his own country, that his name is a guarantee of excellence. Had he merely published Dr. Allen's work with his approval, the compliment would have been a very high one. But he has taken the entire work, and 'made it his own' by displacing Dr. Allen's name from the title page and setting his own name there; surely, the most emphatic act of approval and eulogy that ever an author conferred on another. Dr. Elsner's willingness to vouch for the book seems to be absolute; since there is no mention of Dr. Allen's name in his edition, except that in the last paragraph of the preface, he remarks, incidentally, that the work has been prepared 'with the assistance (au der Hand) of a work by Professor J. Adams Allen, of Chicago.' In short, just as Paris bore stronger testimony than words could express to the beauty of Menelaus's wife, when he carried Helen off—just as Jack Sheppard, by pocketing Lady Barker's diamonds and disregarding her silver plate, paid the highest compliment in his power to the rare stones—so Dr. Elsner's practical eulogy of Dr. Allen's book, leaves nothing to be added in the way of a tribute to its merits."

---

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**Chicago Mortality Report for April, 1875.** Reported by Dr.  
BEN. C. MILLER, Sanitary Superintendent.

|                                    |    |                                    |    |
|------------------------------------|----|------------------------------------|----|
| Accident, crushed.....             | 1  | Gastritis .....                    | 6  |
| " by fall.....                     | 3  | Gastro-enteritis .....             | 7  |
| " by drowning .....                | 3  | Hæmorrhage .....                   | 1  |
| " by poison .....                  | 1  | Heart, disease of .....            | 8  |
| " run over by buggy.....           | 1  | " dropsy of .....                  | 2  |
| " by railroad.....                 | 5  | " fatty degeneration of .....      | 1  |
| Angina pectoris .....              | 1  | " organic disease of .....         | 2  |
| Apoplexy .....                     | 4  | " paralysis of .....               | 1  |
| Asthma .....                       | 1  | " valvular disease of .....        | 4  |
| Atelectasis pulmonum .....         | 1  | Hepatitis .....                    | 3  |
| Bowels, hæmorrhage of .....        | 1  | Hydrocephalus .....                | 6  |
| Brain, congestion of .....         | 5  | Inanition .....                    | 22 |
| " disease of .....                 | 1  | Injury at birth .....              | 1  |
| " paralysis of .....               | 1  | Intussusception .....              | 1  |
| " inflammation of .....            | 14 | Indigestion .....                  | 2  |
| " softening of .....               | 1  | Icterus .....                      | 1  |
| Bronchitis .....                   | 16 | Ilio colitis .....                 | 3  |
| " capillary .....                  | 11 | Influenza .....                    | 1  |
| Cancer .....                       | 1  | Kidneys, Bright's disease of ..... | 2  |
| " of abdomen .....                 | 1  | " inflammation of .....            | 1  |
| " of bowels .....                  | 1  | Laryngitis .....                   | 1  |
| " of liver .....                   | 1  | Liver, cirrhosis of .....          | 2  |
| " of stomach .....                 | 1  | " disease of .....                 | 2  |
| " of uterus .....                  | 1  | " inflammation of .....            | 1  |
| Child birth .....                  | 1  | " hypertrophy of .....             | 1  |
| Cholera infantum .....             | 14 | Lungs, apoplexy of .....           | 1  |
| Consumption .....                  | 67 | " congestion of .....              | 10 |
| Convulsions .....                  | 54 | " hemorrhage of .....              | 2  |
| " puerperal .....                  | 2  | " abscess of .....                 | 1  |
| Croup .....                        | 10 | " malformation of .....            | 1  |
| " membranous .....                 | 3  | Manslaughter .....                 | 1  |
| Cyanosis .....                     | 2  | Metro peritonitis .....            | 2  |
| Debility, general .....            | 6  | Measles .....                      | 19 |
| Delirium tremens .....             | 2  | Meningitis .....                   | 15 |
| Deficient development .....        | 1  | " cerebro-spinal .....             | 9  |
| Diarrhoea .....                    | 12 | " tubercular .....                 | 5  |
| " chronic .....                    | 2  | Myelitis .....                     | 1  |
| Diphtheria .....                   | 6  | Neurosis of pneumogastric .....    | 1  |
| Dropsy, general .....              | 13 | Ovaries, degeneration of .....     | 1  |
| " abdominal .....                  | 1  | Edema glottides .....              | 1  |
| Dysentery .....                    | 5  | Old age .....                      | 16 |
| Dyspepsia .....                    | 1  | Paralysis .....                    | 3  |
| Embolism .....                     | 1  | Pericarditis .....                 | 1  |
| Endo-carditis .....                | 4  | Peritonitis .....                  | 4  |
| Enteritis .....                    | 13 | " puerperal .....                  | 2  |
| Enterico-colitis .....             | 1  | Pneumonia .....                    | 55 |
| Epilepsy .....                     | 1  | " typhoid .....                    | 4  |
| Exposure .....                     | 2  | Pleurisy .....                     | 2  |
| Erysipelas .....                   | 3  | Rheumatism .....                   | 2  |
| Fever, congestive .....            | 2  | " inflammatory .....               | 1  |
| " intermittent .....               | 2  | Scrofula .....                     | 3  |
| " puerperal .....                  | 7  | Septicæmia .....                   | 1  |
| " remittent .....                  | 4  | Small-Pox .....                    | 3  |
| " scarlet .....                    | 17 | Spina bifida .....                 | 1  |
| " typhoid .....                    | 10 | Stomach, softening of .....        | 2  |
| Fungus meduralis .....             | 1  | " hæmorrhage .....                 | 1  |
| Glands of throat, disease of ..... | 1  | Suicide, by cutting throat .....   | 3  |

|                          |    |                          |     |
|--------------------------|----|--------------------------|-----|
| Suicide by shooting..... | 2  | Uremia.....              | 3   |
| " by poison.....         | 1  | Vitality, deficient..... | 1   |
| Syphilis.....            | 2  | Whooping cough.....      | 2   |
| Tabs mesenterica.....    | 22 |                          |     |
| Teething.....            | 5  | Total.....               | 644 |
| Tumor.....               | 2  |                          |     |

Premature births, 8; Still births, 69. Total, 77.

#### COMPARISON.

Deaths in April, 1875, 644; in March, 1875, 550. Increase, 94. Deaths in April, 1874, 486. Increase, 158.

#### AGES.

|                         |     |                             |     |
|-------------------------|-----|-----------------------------|-----|
| Under one year.....     | 248 | Twenty years to thirty..... | 59  |
| One year to two.....    | 66  | Thirty " " forty.....       | 56  |
| Two years to three..... | 30  | Forty " " fifty.....        | 37  |
| Three " " four.....     | 11  | Fifty " " sixty.....        | 33  |
| Four " " five.....      | 9   | Sixty " " seventy.....      | 25  |
| Five " " ten.....       | 23  | Seventy " " eighty.....     | 22  |
| Ten " " twenty.....     | 19  | Eighty " " ninety.....      | 6   |
|                         |     | Total.....                  | 644 |
| White.....              | 636 | Males.....                  | 329 |
| Colored.....            | 8   | Females.....                | 315 |
| Total.....              | 644 | Total.....                  | 644 |
|                         |     | Total.....                  | 644 |

#### NATIONALITIES.

|                            |     |              |    |                       |     |
|----------------------------|-----|--------------|----|-----------------------|-----|
| Africa.....                | 1   | England..... | 11 | Scotland.....         | 3   |
| Austria.....               | 1   | Germany..... | 84 | Shetland Islands..... | 1   |
| Bohemia.....               | 7   | Holland..... | 1  | Sweden.....           | 9   |
| Canada.....                | 9   | Ireland..... | 52 | Switzerland.....      | 2   |
| Native—Chicago.....        | 111 | Italy.....   | 1  | Unknown.....          | 8   |
| Foreign, "                 | 233 | Norway.....  | 4  | Total.....            | 644 |
| U. States, other parts 104 |     | Poland.....  | 1  |                       |     |
| Denmark.....               | 1   |              |    |                       |     |

Deaths daily, 214. Mean thermometer, 44°. Rain fall, 2.32 inches.

#### MORTALITY BY WARDS.

| No. | Wards. | Deaths. | Pop. in 1874.      | Percentage. | No. | Wards. | Deaths. | Pop. in 1874.    | Percentage. |
|-----|--------|---------|--------------------|-------------|-----|--------|---------|------------------|-------------|
| 1   | 4      | 5,725   | one death in 1,431 |             | 11  | 20     | 14,022  | one death in 701 |             |
| 2   | 6      | 4,830   | " "                | 805         | 12  | 19     | 16,792  | " "              | 884         |
| 3   | 17     | 14,861  | " "                | 874         | 13  | 29     | 17,892  | " "              | 617         |
| 4   | 8      | 15,361  | " "                | 1,920       | 14  | 29     | 16,720  | " "              | 576         |
| 5   | 26     | 20,078  | " "                | 722         | 15  | 95     | 45,545  | " "              | 476         |
| 6   | 55     | 35,916  | " "                | 653         | 16  | 41     | 21,922  | " "              | 535         |
| 7   | 54     | 31,722  | " "                | 587         | 17  | 21     | 20,777  | " "              | 989         |
| 8   | 38     | 29,143  | " "                | 767         | 18  | 39     | 21,392  | " "              | 549         |
| 9   | 46     | 31,654  | " "                | 688         | 19  | 7      | 4,677   | " "              | 668         |
| 10  | 15     | 17,385  | " "                | 1,159       | 20  | 10     | 8,995   | " "              | 899         |

Ratio of deaths to population in 1874, one death in 614.

|                            |     |                            |     |
|----------------------------|-----|----------------------------|-----|
| No. deaths in Wards.....   | 579 | Manslaughter.....          | 1   |
| Accidents.....             | 14  | Poisoned.....              | 3   |
| Chicago River.....         | 2   | St. Joseph's Hospital..... | 1   |
| County Hospital.....       | 10  | Suicides.....              | 6   |
| Foundlings' Home.....      | 21  | Woman's Refuge.....        | 1   |
| Hospital Alexian Bros..... | 3   | Total.....                 | 644 |
| Mercy Hospital.....        | 3   |                            |     |





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|    | Fr. Podophylli,         | gr. C.         | .75 3.50   |
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|    | No-fiat pilulae, No. C. | Dose 1-2.      |            |

## PIL ANTICHOROMANIA.

|    |                         | (Warner & Co.) |            |
|----|-------------------------|----------------|------------|
| Rx |                         | Per<br>100     | Per<br>500 |
|    | Zinci Valer.            | gr. CC.        |            |
|    | Feni "                  | gr. XXV.       |            |
|    | Ext. Sumbul,            | gr. I.         | .75 3.50   |
|    | No-fiat pilulae, No. C. | Dose 1-2.      |            |

## PIL ANTISPASMODIC.

|    |                         | (Warner & Co.) |            |
|----|-------------------------|----------------|------------|
| Rx |                         | Per<br>100     | Per<br>500 |
|    | Ext. Hyoscyami,         | gr. L.         |            |
|    | Morphia Acetat,         | gr. X.         |            |
|    | Brom. Camphor,          | gr. L.         | .75 3.50   |
|    | Fr. Capsici,            | gr. L.         |            |
|    | No-fiat pilulae, No. C. | Dose 1-2.      |            |

PILLS SENT BY MAIL ON RECEIPT OF PRICE.

# Warner & Co's Sugar-Coated Pills.

PRICE  
Per  
100  
50

## PIL ANTI-PERIODIC.

(Warner & Co.)

|    |                         |           |          |
|----|-------------------------|-----------|----------|
| R: | Cinchonidiae Sulph.,    | gr. C.    |          |
|    | Res. Podophylli,        | gr. V.    |          |
|    | Strychnia Sul.,         | gr. III.  |          |
|    | Gelsemin,               | gr. V.    | .50 3.75 |
|    | Ferri Sulph. Exs.,      | gr. L.    |          |
|    | Ol. Res. Capsici,       | gtt. X.   |          |
|    | Mc-fiat pilulae, No. C. | Dose 1-2. |          |

## PIL ANTI-SPLENETIC.

(Warner & Co.)

|    |                         |           |          |
|----|-------------------------|-----------|----------|
| R: | Fr. Aloes Soc.,         | gr. C.    |          |
| "  | Ammoniaci,              |           |          |
| "  | Myrrhae, aa             | gr. L.    | .60 3.75 |
|    | Ext. Bryony,            | gr. C.    |          |
|    | Mc-fiat pilulae, No. C. | Dose 2-4. |          |

## PIL ASTRINGENT.

(Warner & Co.)

|    |                         |           |          |
|----|-------------------------|-----------|----------|
| R: | Ext. Geranii;           | gr. CC.   |          |
|    | Fr. Opii,               | gr. XXV.  |          |
|    | Ol. Monoth. Pip.,       |           | .60 3.75 |
|    | Ol. Res. Gingiber, aa   | gtt. V.   |          |
|    | Mc-fiat pilulae, No. C. | Dose 1-2. |          |

## PIL CATHARTIC. (Cholagogue.) (Warner & Co.)

|    |                         |           |          |
|----|-------------------------|-----------|----------|
| R: | Res. Podophylli,        | gr. L.    |          |
|    | Fil. Hydriag.,          | gr. XXV.  |          |
|    | Ext. Hyoscyami,         | gr. XII.  |          |
| "  | Nuc. Vom.,              | gr. VI.   | .60 3.75 |
|    | Ol. Res. Capsici,       | gtt. XII. |          |
|    | Mc-fiat pilulae, No. C. | Dose 1-2. |          |

SPECIAL RECIPES MADE WHEN 3,000 OR MORE PILLS ARE ORDERED.

# Warner & Co's Sugar-Coated Pills.

PRICE.

Per  
100  
500

## PIL ECCOPROTIC.

R Ext. Aloes Soc.,  
 " Nuc. Vomica,  
 Res. Podophylli,  
 Ol. Caryophyl.  
 Mc-fiat pilulae, No. C.

(Warner & Co.)

gr. CC.  
 gr. XX.  
 gr. XXX.  
 gtt. X.  
 Dose 2-4.

.60 2.75

## PIL LAXATIVE.

R Fr. Aloes Soc.,  
 Sulphur,  
 Res. Podophylli,  
 Res. Guaiaci,  
 Syr. Chamni,  
 Mc-fiat pilulae, No. C.

(Warner & Co.)

gr. C.  
 gr. XX.  
 gr. XX.  
 gr. L.  
 Q. S.  
 Dose 1-2.

.60 2.75

## PIL SEDATIVE.

R Ext. Sambul,  
 " Valeriana,  
 " Hyoscyami, aa  
 " Cannab. Ind.,  
 Mc-fiat pilulae, No. C.

(Warner & Co.)

gr. I.  
 gr. X.  
 Dose 1-2.

.75 3.50

## PIL TONIC.

R Ext. Gentianae,  
 " Humuli,  
 Feni Carl. Sacch.,  
 Ext. Nuc. Vomica,  
 Res. Podophylli,  
 Ol. Res. Zingiber,  
 Mc-fiat pilulae No. C.

(Warner & Co.)

gr. C.  
 gr. I.  
 gr. XXV.  
 gr. V.  
 gr. IV.  
 gtt. X.  
 Dose 1-2.

.60 2.75

PILLS SENT BY MAIL ON RECEIPT OF PRICE.





# PURE COD-LIVER OIL.

Manufactured on the Sea-Shore by HAZARD & CASWELL, from  
Fresh and Selected Livers.

The universal demand for an article of Cod-Liver Oil that could be depended upon as *strictly pure and scientifically prepared*, having been long felt by the Medical Profession, we were induced to undertake its manufacture at the *Fishing Stations*, where the fish are brought to land every few hours, and the livers consequently are in great perfection.

This Oil is manufactured by us on the sea-shore, with the greatest care, from fresh healthy livers of the Cod only, without the aid of any chemicals, by the simplest possible process and lowest temperature by which the Oil can be separated from the cells of the livers. It is nearly devoid of color, odor and flavor—having a bland, fish-like, and, to most persons, not unpleasant taste. It is so sweet and pure that it can be retained by the stomach when other kinds fail, and patients soon become fond of it.

The secret of making good Cod-Liver Oil lies in the proper application of the proper degree of heat; too much or too little will seriously injure the quality. Great attention to cleanliness is absolutely necessary to produce sweet Cod-Liver Oil. The rancid Oil generally found in market is the product of manufacturers who are careless about these matters.

Prof. Parker, of New York, says: "I have tried almost every other manufacturer's oil, and give yours the decided preference."

Prof. Hayes, State Assayer of Mass., after a full analysis of it, says: "It is the best for foreign or domestic use."

After years of experimenting, the Medical Profession of Europe and America, who have studied the effects of different Cod-Liver Oils, have unanimously decided the light straw-colored Cod-Liver Oil to be far superior to any of the brown Oils.

## The Three Best Tonics of the Pharmacopœia: IRON—PHOSPHORUS—CALISAYA.

**CASWELL, HAZARD & CO.** also call the attention of the Profession to their preparation of the above estimable Tonics, as combined in their elegant and palatable **Ferro-Phosphorated Elixir of Calisaya Bark**, a combination of the Pyrophosphate of Iron and Calisaya never before attained, in which the nauseous inkickness of the Iron and astringency of the Calisaya are overcome, without any injury to their active tonic principles, and blended into a beautiful amber-colored Cordial, delicious to the taste, and acceptable to the most delicate stomach. This preparation is made directly from the **ROYAL CALISAYA BARK**, not from **ITS ALKALOIDS OR THEIR SALTS**—being unlike other preparations called "Elixir of Calisaya and Iron," which are simply an **Elixir of Quinine and Iron**. Our Elixir can be depended upon as being a true Elixir of Calisaya Bark with Iron. Each dessertspoonful contains seven and a half grains Royal Calisaya Bark, and two grains Pyrophosphate of iron.

**Ferro-Phosphorated Elixir of Calisaya Bark with Strychnia.** This preparation contains one grain of Strychnia added to each pint of our Ferro-Phosphorated Elixir of Calisaya Bark, greatly intensifying its tonic effect.

**Ferro-Phosphorated Elixir of Calisaya with Bismuth**, containing eight grains Ammonio-Citrate of Bismuth in each tablespoonful of the Ferro-Phosphorated Elixir of Calisaya Bark.

**Elixir Phosphate Iron, Quinine and Strychnia.** Each teaspoonful contains one grain Phosphate Iron, one grain Phosphate Quinine, and one sixtieth-fourth of a grain of Strychnia.

**Ferro-Phosphorated Elixir of Gentian**, containing one ounce of Gentian, and one hundred and twenty-eight grains Pyrophosphate Iron to the pint, making in each dessertspoonful seven and one-half grains Gentian and two grains Pyrophosphate Iron.

**Elixir Valerianate of Ammonia.** Each teaspoonful contains two grains Valerianate Ammonia.

**Elixir Valerianate of Ammonia and Quinine.** Each teaspoonful contains two grains Valerianate Ammonia and one grain Quinine.

**Ferro-Phosphorated Wine of Wild Cherry Bark.** Each fluid-drachm contains twenty-five grains of the Bark, and two grains of Ferri-Pyrophosphate.

**Wine of Pepsin.** This article is prepared by us from fresh Rennets and pure Sherry Wine.

**Elixir Taraxacum Comp.** Each dessertspoonful contains fifteen grains of Taraxacum.

**Elixir Pepsin, Bismuth and Strychnine.** Each fluid-drachm contains one sixty-fourth of a grain of Strychnine.

**Juniper Tar Soap.** Highly recommended by the celebrated Erasmus Wilson, and has been found very serviceable in chronic eczema and diseases of the skin generally. It is invaluable for chapped hands and roughness of the skin caused by change of temperature. It is manufactured by ourselves, from the purest materials, and is extensively and successfully prescribed by the most eminent Physicians.

**Iodo-Ferrated Cod-Liver Oil.** This combination holds sixteen grains Iodide of Iron to the ounce of our pure Cod-Liver Oil.

**Cod-Liver Oil, with Iodine, Phosphorus and Bromine.** This combination represents Phosphorus, Bromine, Iodine and Cod-Liver Oil, in a state of permanent combination, containing in each pint: Iodine, eight grains; Bromine, one grain; Phosphorus, one grain; Cod-Liver Oil, one pint.

**Cod-Liver Oil, with Phosphate of Lime.** This is an agreeable emulsion, holding three grains Phosphate of Lime in each tablespoonful.

**Cod-Liver Oil, with Lacto-Phosphate of Lime.**

CASWELL, HAZARD & CO.,

DRUGGISTS AND CHEMISTS,

NEW YORK.

# Parke, Davis & Co., Manufacturing Chemists,

DETROIT,

## MANUFACTURERS OF

|  |                          |
|--|--------------------------|
| Fluid & Solid Extracts.                    | Elixirs, Wines & Syrups. |
| Sugar Coated Pills,                        | Aqua Ammoniae.           |
| Pure Concentrations,                       | Spirits Nitre Dulc..     |
| Chem. Pure Chloroform, Chemicals, &c., &c. |                          |

We call special attention to the following articles lately added to our list:

Fluid Extract Guarana.

Fluid Extract Eucalyptus Globulus.

Fluid Extract Bearsfoot, (from the fresh root.)

Fluid Extract Calendula.

Fluid Extract Chestnut Leaves.

Fluid Extract Conium Seed.

Fluid Extract Cotton Root Bark, (from the fresh root.)

Fluid Extract Gelsemium, (from the fresh root.)

Fluid Extract Stavesacre Seed.

Pills of Picrate Ammonium. (Sugar Coated.)

Brundage's Anti-Constipation Pills. (Sugar Coated.)

Send for dose, descriptive list and circulars, which will be forwarded on application.

Physicians who desire our preparations will please specify P., D. & Co. on their prescriptions.

Our list of manufactures can be obtained of the following Wholesale Druggists, at manufacturer's rates:

|                           |                       |
|---------------------------|-----------------------|
| R. Macready & Co.,        | Cincinnati, O.        |
| Kenyon, Potter & Co.,     | Syracuse, N. Y.       |
| Geo. A. Kelly & Co.,      | Pittsburg, Pa.        |
| Benton, Myers & Canfield, | Cleveland, O.         |
| Geo. M. Dixon,            | Dayton, O.            |
| A. Peter & Co.,           | Louisville, Ky.       |
| E. Burnham, Son & Co.,    | Chicago, Ill.         |
| A. A. Mellier,            | St. Louis, Mo.        |
| Colburn, Birks & Co.,     | Peoria, Ill.          |
| Geo. A. Eddy,             | Leavenworth, Kan.     |
| Godbe & Co.,              | Salt Lake City, Utah. |
| Plain, Williams & Co.,    | Toledo, O.            |
| Shrewsbury Bros.,         | Parkersburg, W. Va.   |
| Farrand, Williams & Co.,  | Detroit, Mich.        |
| Swift & Dodds,            | Detroit, Mich.        |

Depot in Chicago,

E. Burnham, Son & Co.